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Drug & Cosmetic INDUSTRY

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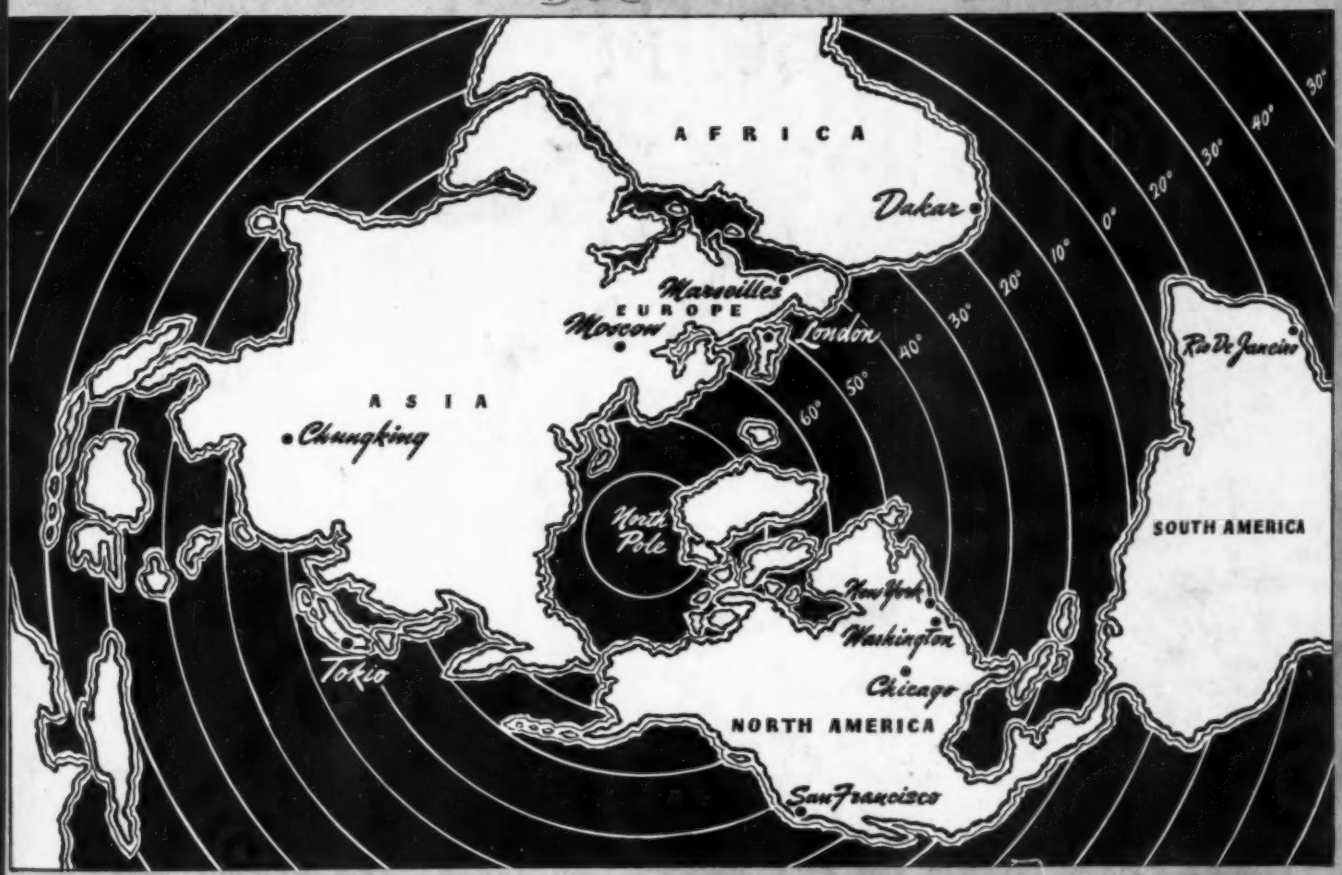
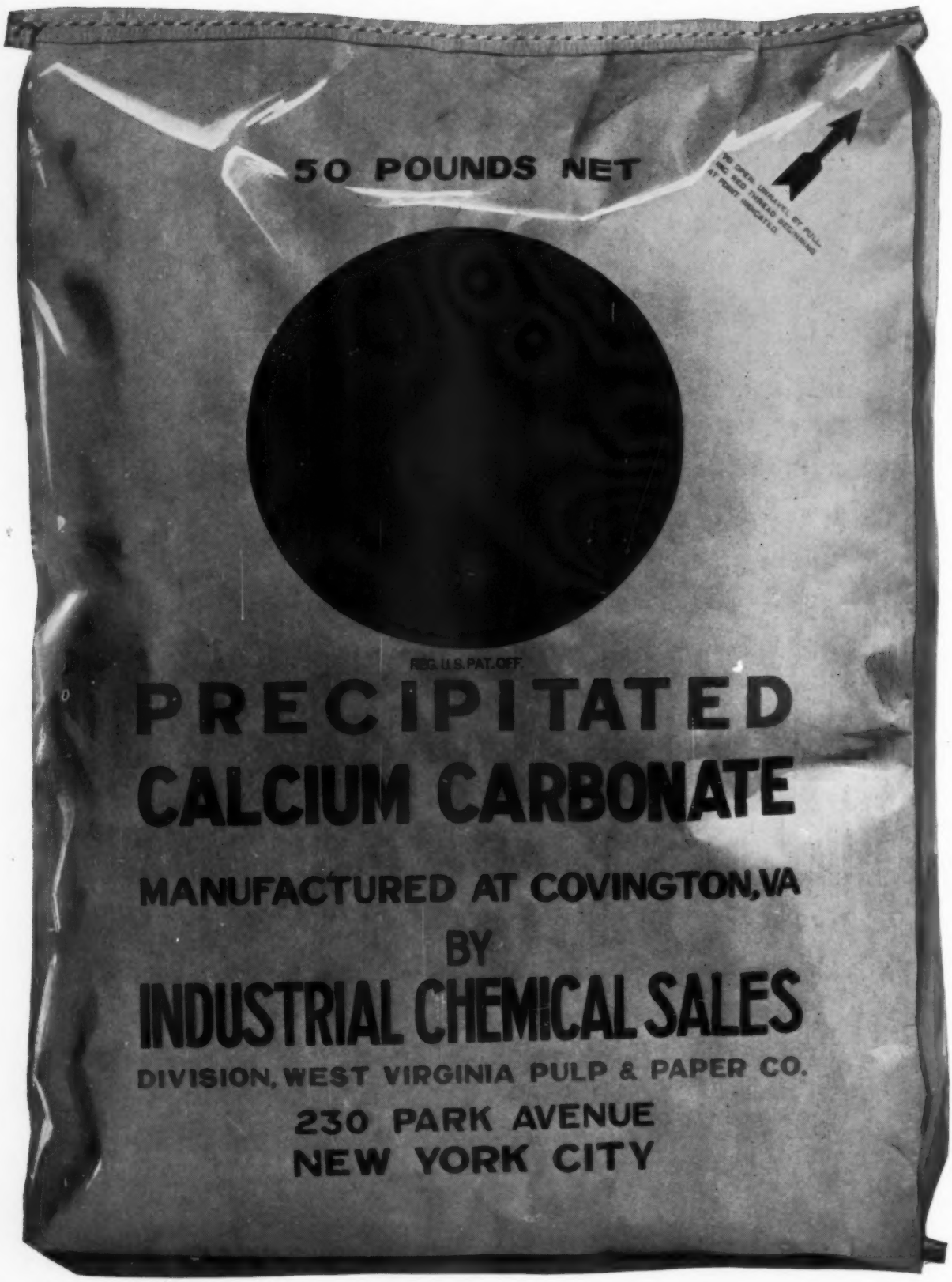


The new geography we will live by shows the great land masses of North America, Europe and Asia grouped around the North Pole. There is no Eastern or Western Hemisphere. Our Latin American neighbors are less our neighbors than the Russians. Washington, D. C., Des Moines, Iowa and Seattle, Washington, are an equal distance from North Cape in Norway. Puget Sound is about the same distance from Moscow as Wilmington, North Carolina. We have our great sea ports. They may not be our great air ports. Chicago is closer to most of Asia than New York or San Francisco.

122245 ★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Under Secretary of War Robert P. Patterson has just informed the men and women employees at Hooker that they have won the privilege of adding a coveted White Star to the Army-Navy "E" Production Award Flag which now flies above their plant.

This White Star is awarded for meritorious services on the production front. In the words of Secretary Patterson it is:

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Drug & Cosmetic INDUSTRY

JULY 1943

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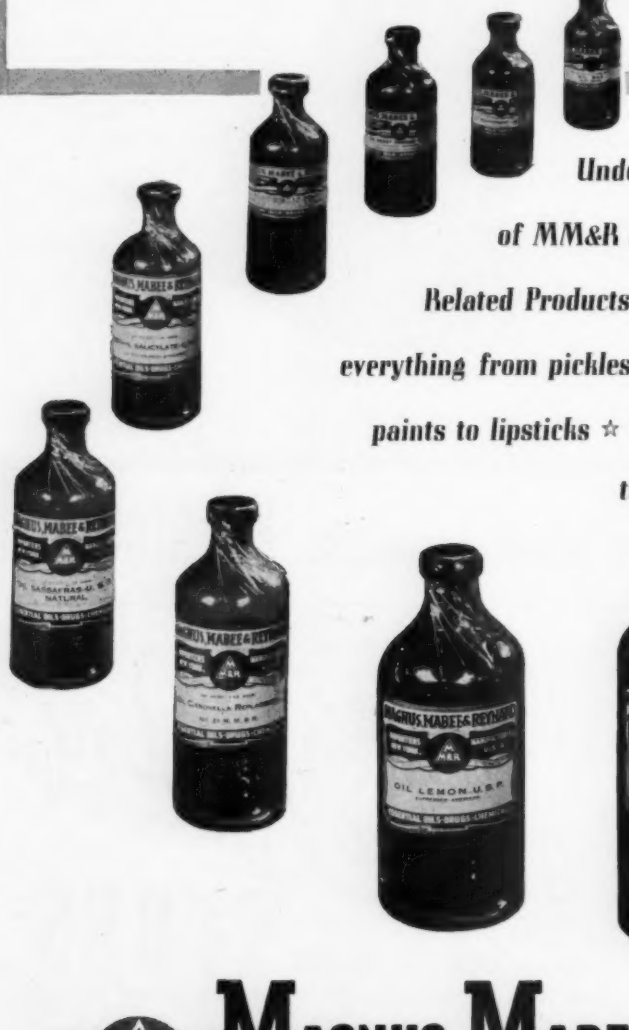

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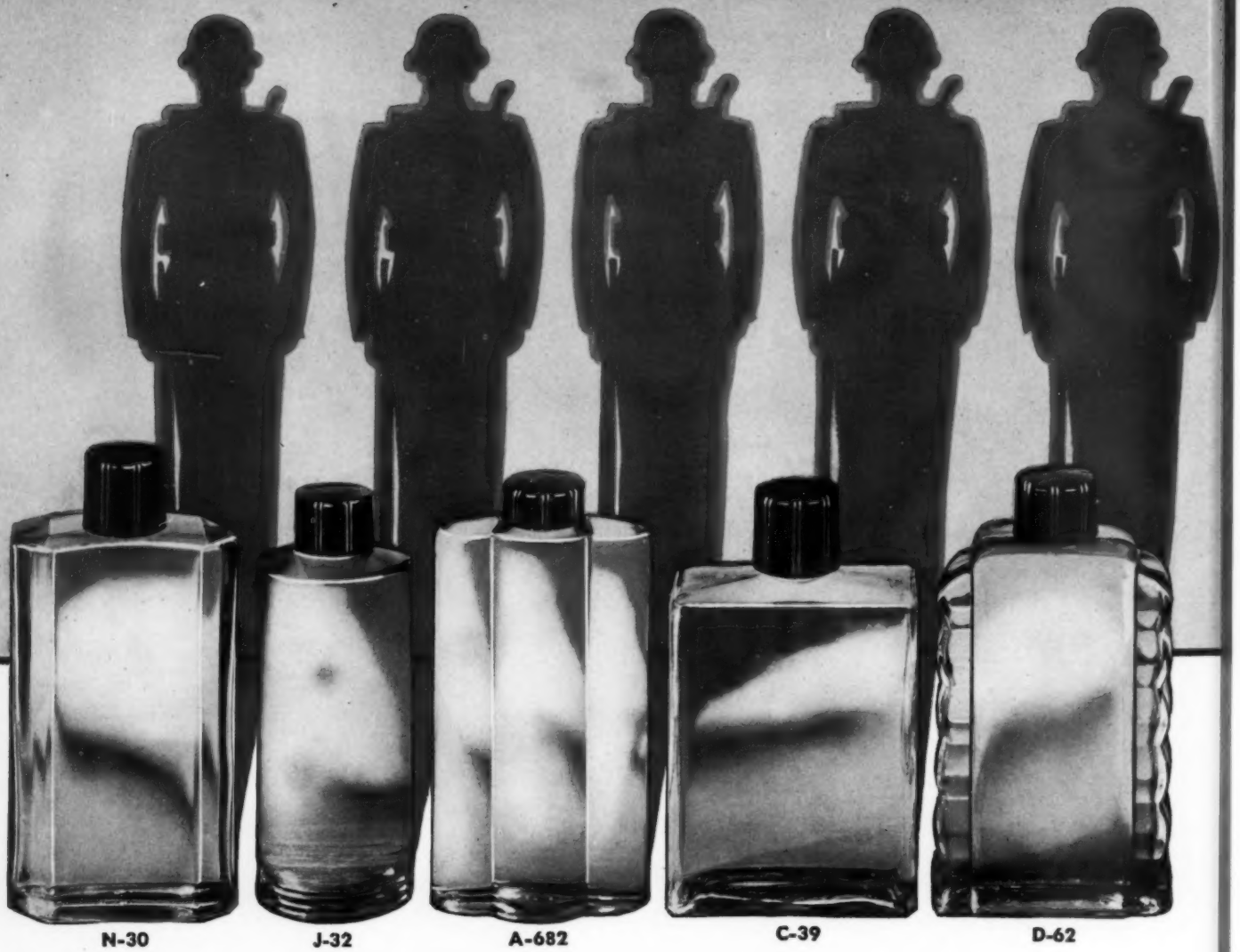

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When you think of bottles think of

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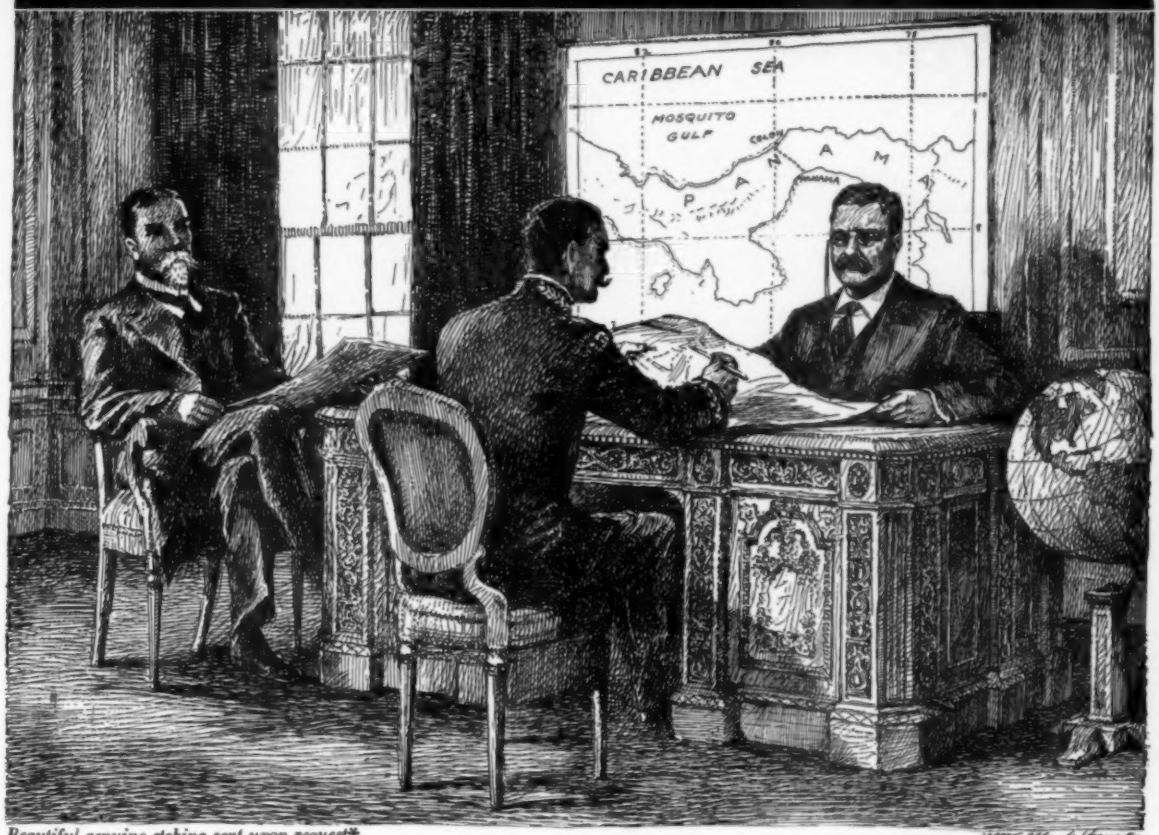
1903 - The Panama Canal Treaty Was Signed...



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Empire counts among its clients many leaders in the field.

*November 18, 1903—*The Hay-Bunau-Varilla Treaty, allowing the United States to build a canal across Panama, was signed. The scene depicted above shows Secretary of State John Hay, Excelentisimo Minister Philippe Bunau-Varilla of Panama, and President Theodore Roosevelt discussing this momentous document before signing.*

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It was forty years ago that Empire Box Corporation was born. In 1903 this company was founded to serve American industry. The proof that it has served it well lies in the fact that Empire Box Corporation today is a leader in its field.

This growth has been *earned*. Earned through the efficiency of its modern-as-tomorrow equipment and its high-speed precision printing; *earned*, too, through its alertness in accepting and pioneering new packaging trends; *earned* through its ability and willingness to give American industry wholehearted cooperation.

We believe that today, in preparation for the postwar period, you, as a user of folding boxes, should acquaint yourself with Empire's advantages. Your correspondence is invited.

* **Empire Box Corporation**

Without obligation, I would like to have an enlarged genuine etching, suitable for framing, of the scene celebrating the signing of the Panama Canal Treaty. I understand that it carries no advertising.

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City.....State.....

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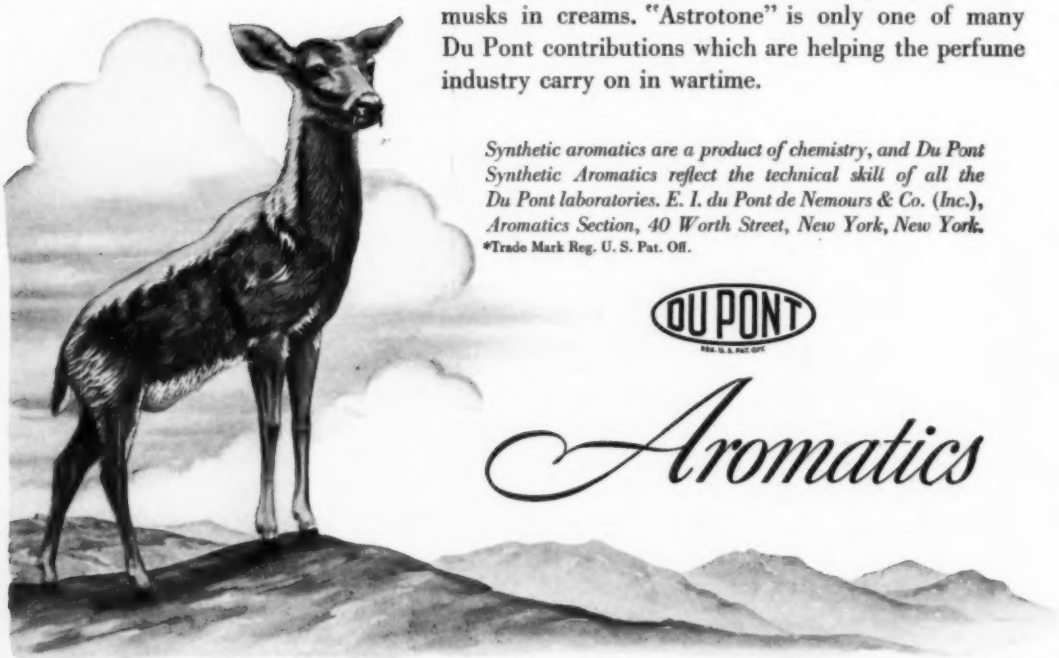
As a fixative in fine perfumes, "Astrotone"—after other odors fade—has a lingering warmth and sweetness. It is recommended for powders, and to replace the nitro musks in creams. "Astrotone" is only one of many Du Pont contributions which are helping the perfume industry carry on in wartime.



Synthetic aromatics are a product of chemistry, and Du Pont Synthetic Aromatics reflect the technical skill of all the Du Pont laboratories. E. I. du Pont de Nemours & Co. (Inc.), Aromatics Section, 40 Worth Street, New York, New York.

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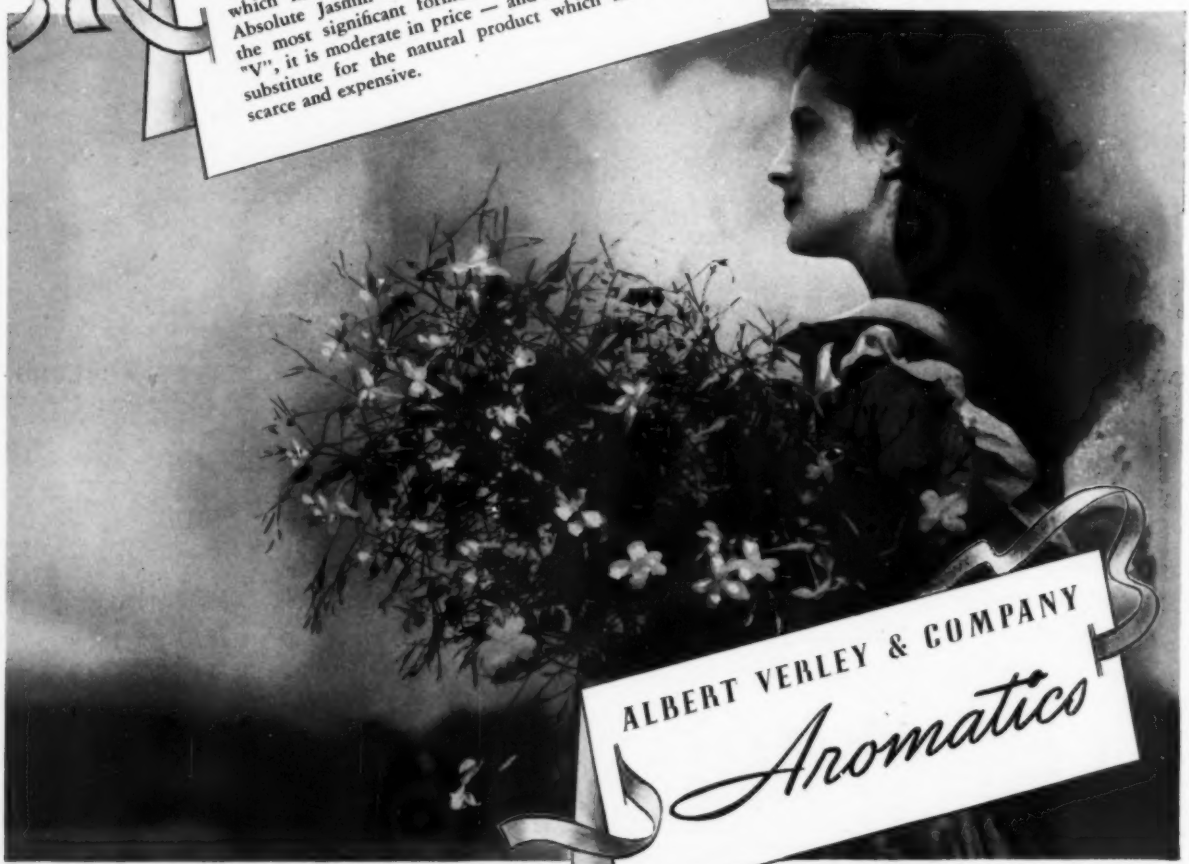

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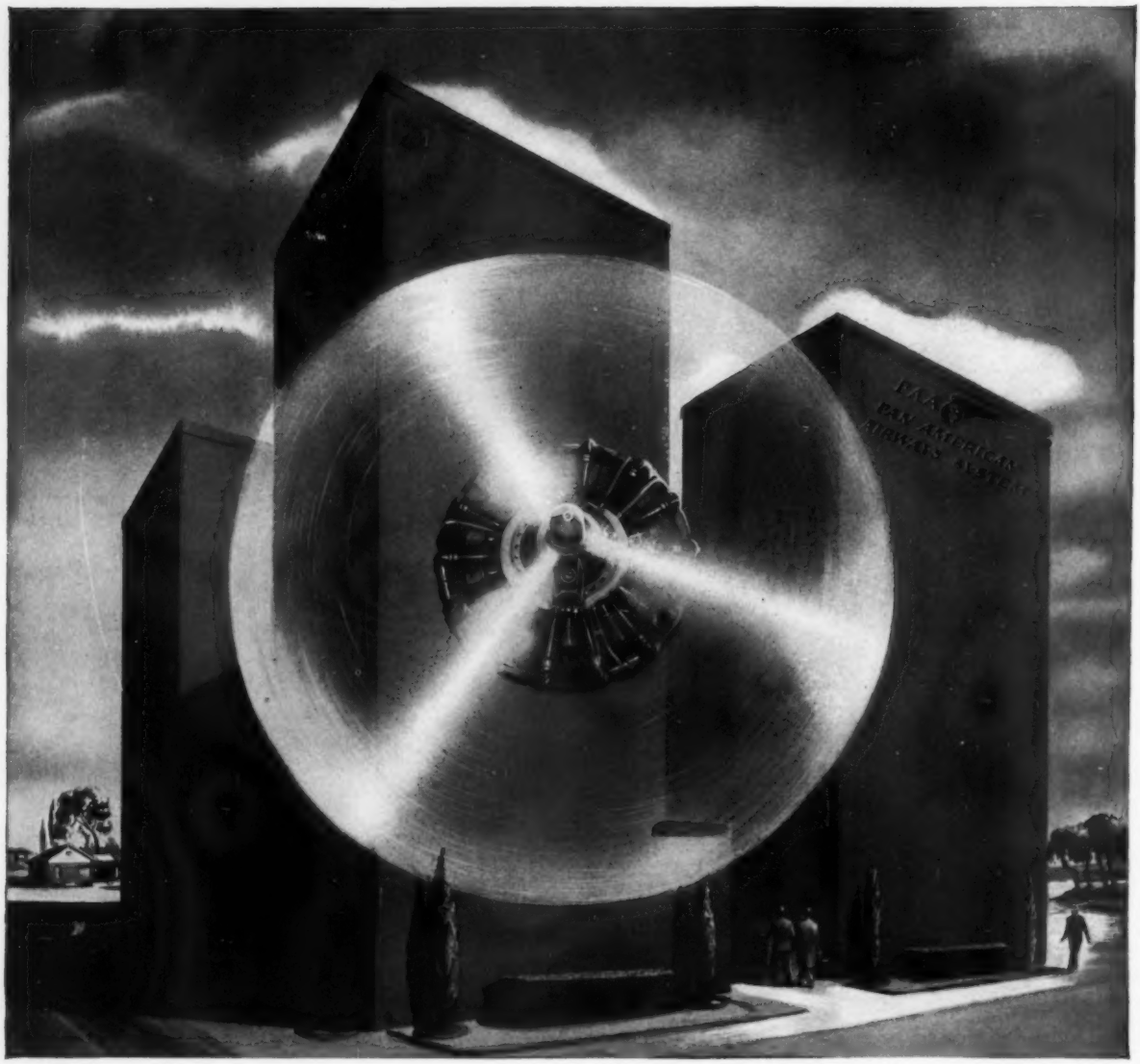

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ESSENTIAL OILS • PERFUME BASES • AROMATICS

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Paramount Star

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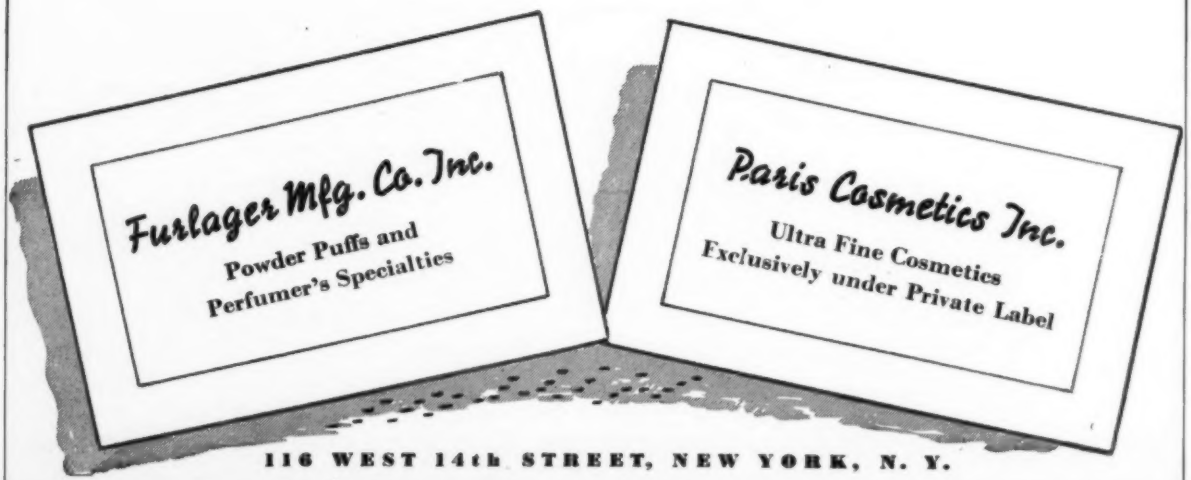

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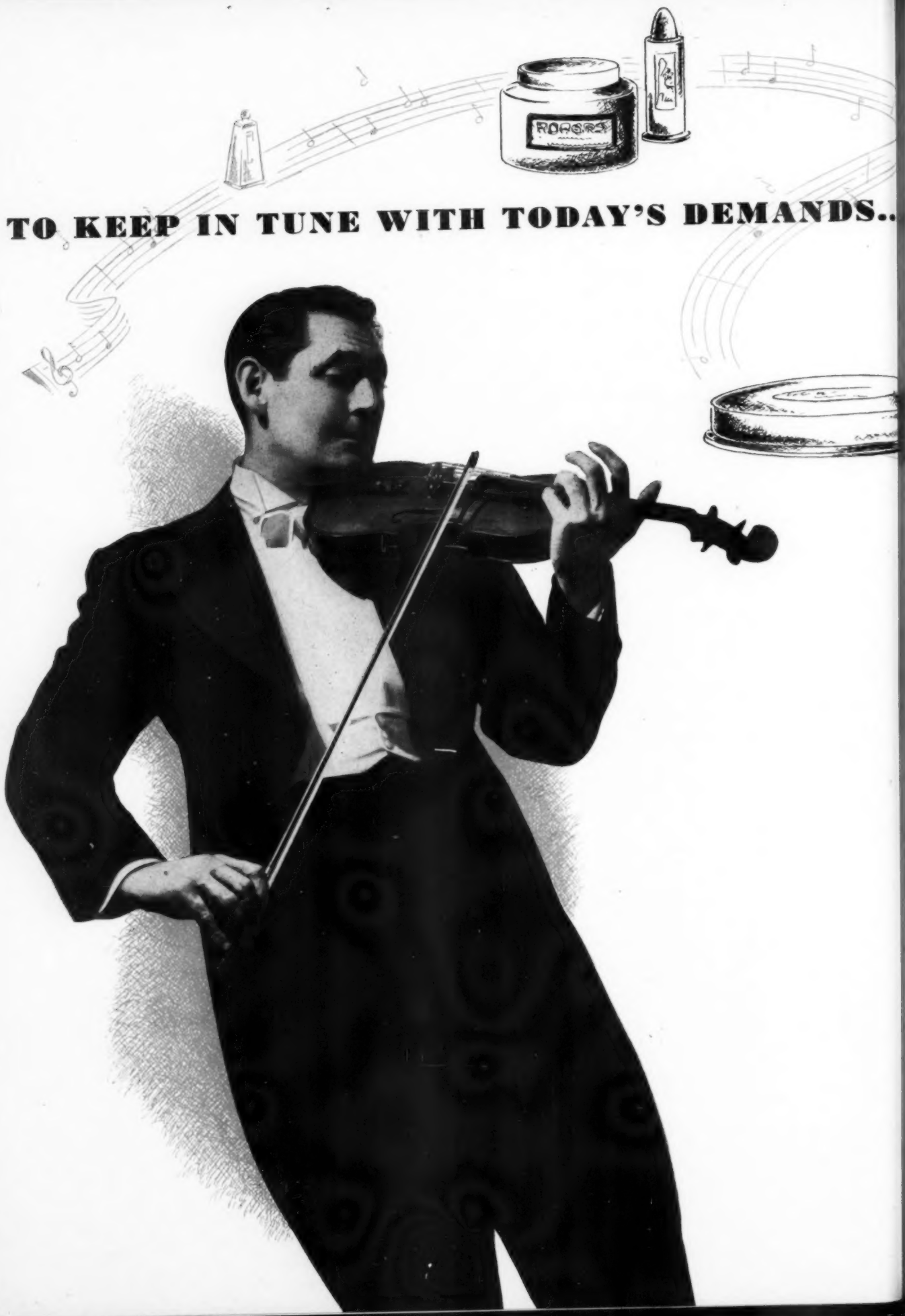
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As the war economy tightens, maintenance of cherished standards of quality, and of reputation painstakingly built over the years, becomes increasingly a challenge to the perfumer's art. At such a time, careful selection of available perfume raw materials is most essential.

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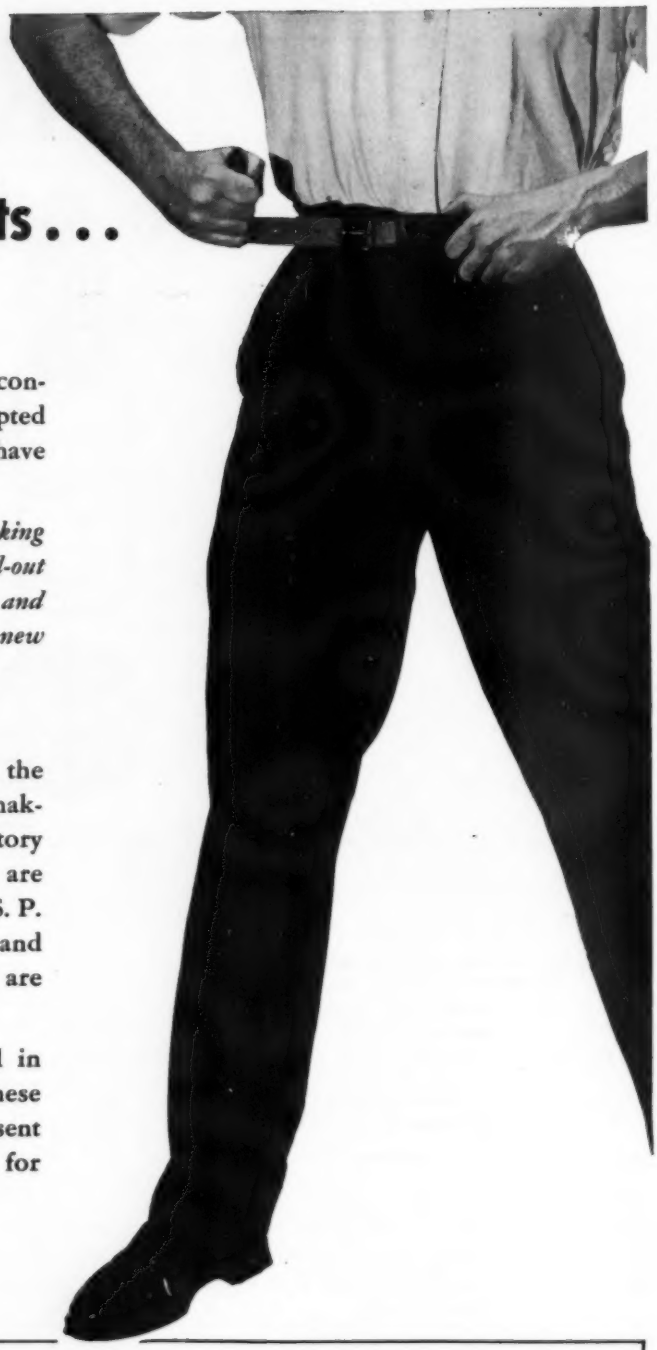
as we tighten our belts . . .



Cheerfully—eagerly, because it's our contribution to Victory, all of us have accepted the fact that for the duration, we will have to tighten our belts and "do without."

But typical American know-how is licking many of Industry's problems created by all-out war. We are discovering how available and familiar materials can be put to work on new uses—with results amazingly satisfactory.

* * *

Along with every refinery and plant in the American Petroleum Industry, we are making Government cooperation for Victory our first consideration. However, we are still able to supply quantities of our U. S. P. and Technical White Mineral Oils and U. S. P. Petrolatums. Some of them are listed below.

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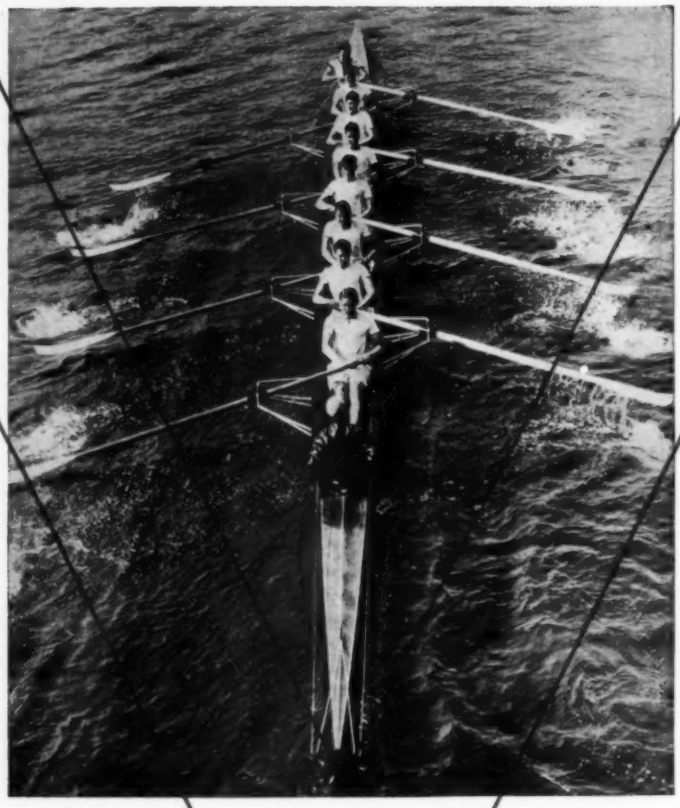

TEAMWORK is essential in business today as never before in order to back up the war effort. A healthy industry with everyone pulling together is absolutely necessary for final Victory.

We are making every effort to co-operate with our customers to the fullest extent in these trying times in order to furnish them with the necessary materials wherever possible.

Where, because of the necessity for the use of raw materials in war work it is impossible to supply them any longer, we know that we have the full co-operation of our customers in aiding us to solve the problem for them.

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Consumer acceptance of cosmetic preparations depends in large part on *quality, uniformity,* and *reliability.* Leading manufacturers incorporate these sales-building features into their preparations by using Merck products.

The high recognition accorded to Merck Chemicals throughout America is proof of how well the Company has kept faith with those whom it serves. Today, more than 1,500 products are supplied to physicians, dentists, veterinarians, pharmacists, chemists, laboratories, and various branches of industry.

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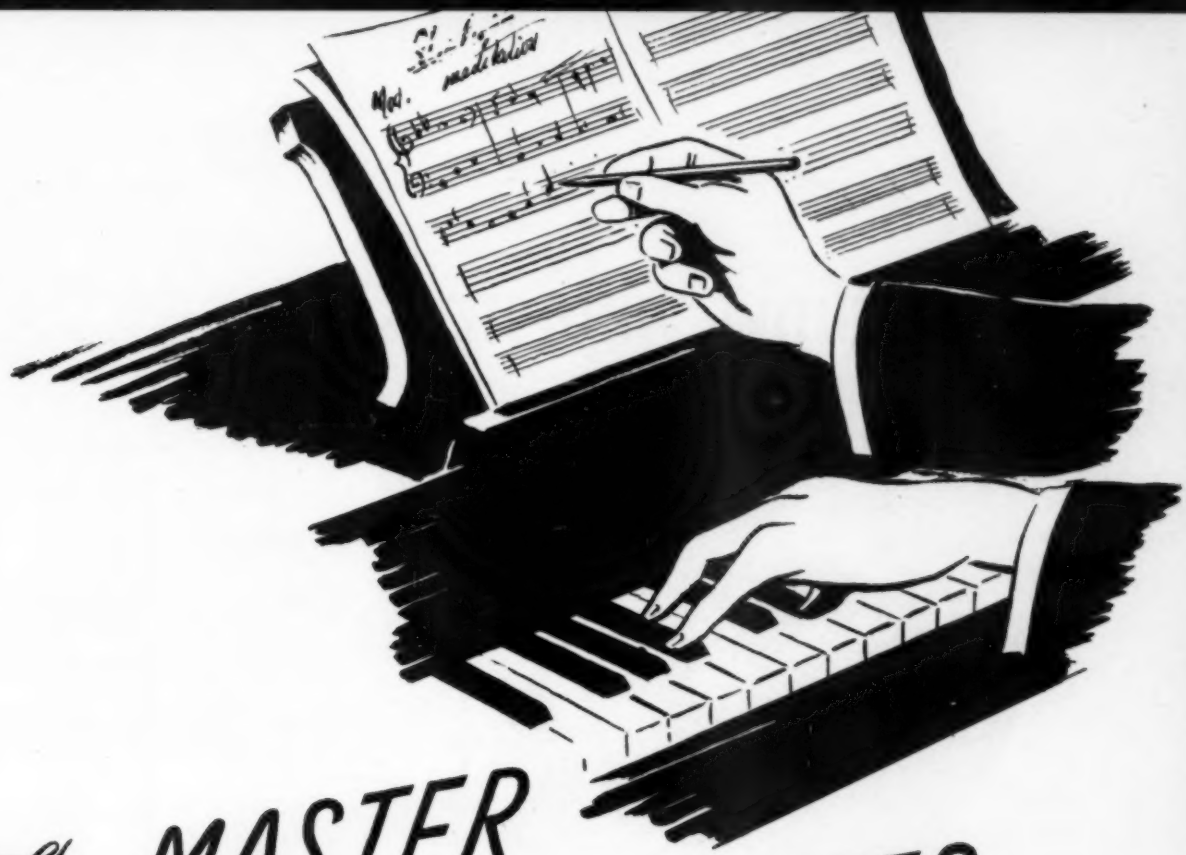
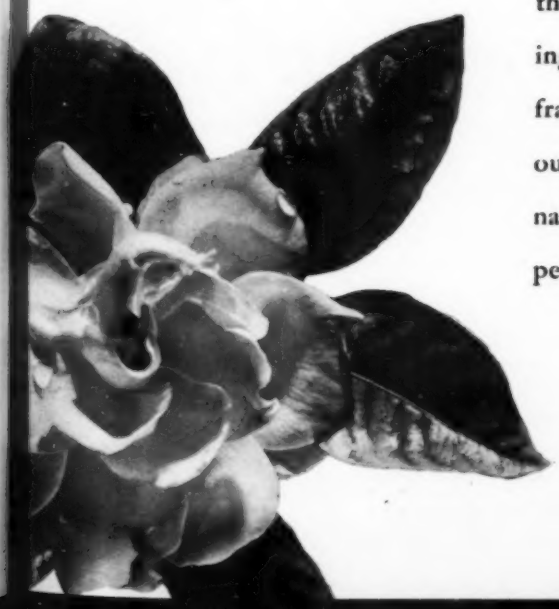

The MASTER CREATES

SLOWLY at times—again, incredibly swift, the master's fingers fly over the keyboard and tiny black and white notes cover the page. As the notes blend together, immortal music fills the air—music that will live in men's hearts forever. And the blending of musical notes is very like the blending of perfumes, for as the notes must follow each other in perfect order, so the right ingredients in just the right proportions bring forth the delicate fragrance of the flower. In this tradition, we are proud to offer our Gardenia Supreme, a truly remarkable reproduction of the natural flower fragrance. Samples are available for use in your perfumes, colognes, creams and powders.



Aromatic Products, Inc.

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THE EXECUTIVE WHO STOPS TO THINK . . .

Knows that "10% for War Bonds isn't enough these days"

Workers' Living Costs going up . . . and Income and Victory Tax now deducted at source for thousands of workers . . .

Check! You're perfectly right . . . but all these burdens are more than balanced by *much higher* FAMILY INCOMES *for most of your workers!*

Millions of new workers have entered the picture. Millions of women who never worked before. Millions of others who never began to earn what they are getting today!

A 10% Pay-Roll Allotment for War Bonds from the wages of the family bread-winner is one thing—*a 10% Pay-Roll Allotment from each of several workers in the same family is quite another matter!* Why, in many such cases, it could well be jacked up to 30%—50% or even more of the family's *new* money!

That's why the Treasury Department now urges you to revise your War Bond *thinking*—and your War Bond *selling*—on the basis of *family* incomes. The current War Bond campaign is built around the family unit—and labor-management sales programs should be revised accordingly.

For details get in touch with your local War Savings Staff which will supply you with all necessary material for the proper presentation of the new plan.

Last year's bonds got us started—*this year's bonds are to win!* So let's all raise our sights, and get going. If we all pull together, we'll put it over with a bang!

This space is a contribution to America's all-out war effort by

DRUG & COSMETIC INDUSTRY

you've done your bit
. . . now do your best!

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IF ALL THE SIGNS IN THE WORLD WERE TAKEN DOWN TONIGHT...

what would happen tomorrow?

Confusion! Disorder! A world without signs would be a world without direction . . . a bewildered humanity.

Signs were the first form of intelligent thought communication after mankind learned to talk. Since that time signs have been a fundamental factor in the development of modern civilization. Everyday life...the activities of government...of industry and commerce...the movements of transportation...the motivation and direction of human endeavor . . . all are directed to an important degree by signs. Signs have told where to go, what to do, warned, protected, informed, commanded—told what and where to buy. Signs save time, energy, money and contribute to a happier, safer, saner, more orderly life.

The information that signs convey . . . commercial and non-commercial . . . is acted upon more surely . . . more promptly...more frequently...by more people...than that provided by any other visual medium of communication.

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Published to stimulate thoughtful consideration of the importance of signs . . . both commercial and non-commercial . . . as an indispensable source of information and guidance in modern life.

SAVE A LITTLE CORNER FOR A BULLET TO THE *devil*

The devil incarnate . . . and his playmates of the day . . . endeavoring to make a lasting shambles of the world and its belongings. Well have they chosen each other as playmates. Yet each, in his own way, must distrust the other . . . And each in his own mind must fear the hour when a bullet will bid him join his counterpart, Satan, in everlasting perdition.

Let us make room for that bullet.

It may be *the* important bullet for which you make room. It may find the vital space to its destination in a little corner of a freight car, motor carrier, or steamer . . . in space made available through *your* utilization of concentrates rather than bulky packaged oils, flavors, or fruits . . . no matter how essential, no matter how short a ha or apparently insignificant the container.

* * *

For years, manufacturers have found that Florasyn concentrated citrus oils, synthetics, and flavor materials not only take minimum space but yield ma mum results. Because of their proven utility, they h always been recognized as *primary essentials* . . . e before our entry into the war. Today's requireme have simply made them *doubly valuable.*

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This three-piece Alseco Aluminum Seal was specially developed in 1937 for intravenous solutions, to solve the many technical problems involved in sealing and dispensing these products . . . The value of this aluminum seal is seen in the fact that the government has approved its continued use.

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KEEPING POSTED

Castoria Riddle Solved

THE Fletcher's Castoria riddle has been solved, according to the manufacturer, and it seems that the trouble was due to a curtailment of sugar in the product, as well as to a change in the chemical characteristics of the water used in the preparation of the product.

The statement made by Harold B. Thomas, vice-president of Sterling Drug, Inc., reads:

"The process of manufacturing Fletcher's Castoria starts with the aqueous extraction of senna. This extract is added to sugar and other ingredients in a tank for aging. A mild fermentation develops gradually, and the therapeutic values of the product are established with the oxidation of the active principles within it.

"A year ago in our Rahway, N. J. plant, Castoria was made with a 20 per cent lower sugar content, and it was up to standard in every respect.

"In March and April, 1943, to conserve sugar under wartime conditions, we again used the lower sugar content. Our research now discloses that a change in the chemical characteristics of the water, harmless in itself, in combination with the reduced sugar content, interferred with the normal aging process. Fermentation was intensified and speeded up and this retarded normal reoxidation of the active principles. These deoxidized active principles, known as anthroquinones, are known to have an irritant action upon the mucuous membranes.

"The changes which occurred during the aging of the March and April batches were so subtle that they escaped detection through our chemical testing procedures; indeed, even after the presence of the irritant was known through its effect on persons, its identification and the reason for its presence took weeks of research to determine.

"Our research further established that when the deoxidized active principles are brought to their oxidized state, either naturally or artificially, their irritant action is entirely removed, and their laxating values developed.

"Now that the cause of the condition has been definitely ascertained, procedures have been put into effect which will assure normal reoxidation of the therapeutically active principles.

"As a further safeguard, the finished product will be subjected to added biological, as well as chemical, tests before it is offered for sale.

"When Fletcher's Castoria is on sale again, each bottle will bear a laboratory control number, which will relate to the manufacturer's full record of all production data, and the packages will bear a green band instead of a buff one—to avoid confusion with any outstanding stock which may not have been returned."

Dunn vs. Fishbein

A RATHER hot argument got under way at the recent Hot Springs meeting of the American Pharmaceutical Manufacturers Association between Charles Wesley Dunn, counsel of the association, and Dr. Morris Fishbein, editor of the Journal of the American Medical Association and spokesman for organized medicine. The discussion started following Dr. Fishbein's speech, at which time he was questioned by Mr. Dunn as to what organized medicine was going to do for the poor people after the war. However, apparently all is forgotten since Dr. Fishbein in his Dr. Pepys diary in the Journal of the A. M. A. writes as follows: "Then to speak to the American Pharmaceutical Mfg. Assn. where there was some hullabaloo for that C. W. Dunn thought the doctors would be well advised to support some federal plan for medical care of the indigent and those nearly so, whereas old Pepys thought this more particularly a local responsibility." Also Dr. Fishbein wrote to Mr. Dunn, saying: "I enjoyed the meeting. I believe that our little debate added to the interest of the session and, in the end, will do a lot of good."

Corn Shortage

THE shortage of corn for processing is hitting this industry right between the eyes because of the lack of corn sugar and corn starch. Recommendations have been made to increase the allotments of cane sugar to drug manufacturers to offset the loss in corn sugar. However, it is possible that sufficient corn might be made available for these essential needs. As to the starch question, there are available a wheat starch and a soy bean starch, both of which are said to be suitable substitutes for corn starch.

Lauric Acid Oil Control

CONTROL of high lauric acid oils has been shifted from WPB to the Food Distribution Administration. Therefore WPB Supplementary Order M-60-a, covering these products, has been revoked, and they are covered by FDA Order No. 46.

THE UNIVERSITY LIBRARIES OF GEORGIA

Glycol Ethers Allocated

GLYCOL ethers were placed under allocation June 22 by issuance of WPB Allocation Order M-336. This is due to the fact that these products are used very extensively for products which are directly used in the prosecution of the war effort.

Miles Suit Dismissed

THE suit of Miles Laboratories against the Federal Trade Commission in which Miles sought to restrict the control which the Commission has exercised over label statements, was dismissed in the U. S. District Court for the District of Columbia.

Melamine and Urea Plastics

UREA and Melamine plastics were placed under allocation by WPB Allocation Order M-331. These plastics are manufactured with formaldehyde, and it is the very critical position of formaldehyde supplies that appear to be responsible for the order. It will be recalled by those who attended the Toilet Goods Association meeting in New York on May 12 and 13, that C. A. Willard, of the Drug and Chemical Branch of the Chemical Division of WPB, stated at that time that cosmetic manufacturers should investigate melamine resins since "at the moment they are available and free." The condition changed within a month after he made this statement.

Canadian Pharmacopoeia

THE Canadian Committee on Pharmacopoeial Standards met in Ottawa June 11 and 12, and, among other action taken, approved the list of items to be included in the new Canadian Supplement in the British Pharmacopoeia. The principle was established of assigning official proper names to drugs both outside, as well as inside, the Pharmacopoeia, and requiring that such names appear on the label as conspicuously as any other name. Thus a product with half a dozen trade names will always be recognized by its official name. For example, Tetracaine Hydrochloride will be the name for Decicain, Pontocaine, Butethanol, and Amethocaine; and Acetylsalicylic Acid will be the name for Aspirin.

Present difficulties with regard to supplies of vegetable oils resulted in a decision to recommend that camphorated oil be made with any good quality oil, the iodine value of which is below 135, and the freezing point below 0° C. Coloring substances were introduced which would enable the pharmacist to impart any shade of color from purple blue to red. A regulation was adopted to set up an umbrella to cover all tablets except such as experience proved should be dealt with individually. Thus a five grain tablet would be allowed a six per cent margin of error, but a 1/100 grain tablet would be permitted a ten per cent margin of error.

The new items to be included in the Supplement are:

Acidum Nicotinicum
Acidum Phosphoricum Concentratum
Alcohol Tribromethylicum
Amaranthum
Amyleni Hydras
Benzylis Benzoas
Benzoinum
Bromethol
Butacainae Sulphas
Caeruleum Nitens (Brilliant Blue)
Cyclopropanum
Diphenylhydantoinum Solubile
Dithranol
Ephedrina Sicca
Hexobarbitonum Solubile
Liquor Hydrogenii Peroxidi
Menaphthonum
Morphinae Sulphas
Neostigminae Bromide
Neostigminae Methyl-Sulphonas
Nicotinamidum
Nikethamidum
Nitrogenii Monoxidum
Oestradiolis Benzoas
Oestronum
Oleum Cassiae
Oleum Cocois
Oleum Hippoglossi
Oleum Maydis
Paraffinum Liquidum Leve
Pentobarbitonum Solubile
Rubrum Cumidinum (Ponceau-3R)
Riboflavina
Sapo Durus
Sapo Mollis
Secononum
Stilboestrol
Stilboestrolis Dipropionas
Sulphadiazine
Sulphamilamidum
Sulphapyridina
Sulphapyridina Solubilis
Sulphathiazolum
Sulphathiazolum Solubile
Syrupus Ferri Phosphatis cum Strychina
Tartrazina
Tetracainae Hydrochloride
Thiaminae Hydrochloridum
Thyroideum Siccum
Thyroxinum
Unguentum Hydrargyri
Unguentum Hydrargyre Dilutum

Dosage of Vitamin Preparations

THE question of the potency of vitamin preparations and the free use of vitamin products of varying potencies by the general public is one that is most important to the manufacturers of vitamin preparations. The Council on Pharmacy and Chemistry of the American Medical Association issued the following statement on June 26 which gives the views of the A. M. A. on this subject.

At various times the Council has given consideration to excessive and indiscriminate use of vitamin preparations by the general public. There has been no concern over any danger in such usage in doses which the Council would consider for therapeutic recommendation, but it is quite apparent that large numbers of people have been using pharmaceutical preparations of vitamins far in excess of what would be expected to be of real benefit. This first became apparent in considering the large dosages recommended for vitamin A and D preparations when these vitamins became available at a relatively low cost. This prompted the Council to restrict the acceptance of vitamin A and D preparations recommending high dosages of vitamins A and D to preparations advertised only to the physician, and the following statement of policy was adopted:

"Vitamin A and D preparations are accepted with dosages in excess of 10,000 units of vitamin A or 1,000 units of vitamin D if the products are advertised only to the physician and the dosage statement indicates that the dose prescribed provides more than a prophylactic dose of the vitamin."

The Council decided that the principle involved should be applied uniformly to all vitamin preparations and accordingly adopted the following recommendation:

"That acceptable vitamin preparations which supply in each unit (tablet, capsule, etc.) or in the recommended daily intake more than three times the minimum daily requirements set forth in regulations under Sec. 403 (j) of the Food, Drug and Cosmetic Act will be accepted if they are advertised only to the physician."

For the past few years there has been some uncertainty with respect to the type of dosage statement that would meet the requirements of the FDC act for vitamin preparations, particularly those which provided a relatively high dosage. The Council was advised that the statement "Caution: For therapeutic use only, to be used by or on the prescription of a physician" for a thiamine preparation which supplied doses larger than 3 mg. daily would meet the requirements of that act and therefore such a statement has been required. Further consideration has been given to this problem particularly because use of the term "caution" had a connotation which did not seem desirable for vitamin preparations. The Council has received assurance that this caution statement will no longer

be required and that the following type of statement is acceptable for thiamine preparations which supply more than 3 mg. per tablet:

"Dose: One tablet daily, or as prescribed by the physician. This dosage is in excess of the quantity needed for prevention of thiamine deficiency."

The Council voted that this type of dosage statement be made applicable to vitamin preparations which supply in each unit (tablet, capsule, etc.) or in the recommended daily intake more than 12,000 units of vitamin A, 1,200 units of vitamin D, 90 mg. of vitamin C, 3 mg. of thiamine hydrochloride, 6 mg. of riboflavin or 30 mg. of nicotinic acid.

The Council has prepared the following suggested label statements to carry into effect the foregoing recommendations. Labels for thiamine hydrochloride are envisaged in the statement given, but it will apply equally well to other vitamin preparations:

STATEMENTS REQUIRED ON MAIN PANEL

FOR PREPARATIONS SUPPLYING MORE THAN THREE TIMES THE MINIMUM DAILY REQUIREMENTS

Quantity of contents:	50 tablets
Common or usual name:	Thiamine Hydrochloride Tablets
Quantity of vitamin in tablets consumed daily.	10 milligrams
Adequate directions for use:	Dose: One tablet daily, or as prescribed by the physician. This dosage is in excess of the quantity needed for prevention of thiamine deficiency.
Name and place of business:	John Doe 550 Broad Street Chicago, Illinois

FOR PREPARATIONS SUPPLYING THREE TIMES THE MINIMUM DAILY REQUIREMENT OR LESS

Quantity of contents:	100 tablets
Common or usual name:	Thiamine Hydrochloride Tablets
Quantity of vitamin in tablets consumed daily.	One milligram
Dose: This is optional	
Proportion of minimum daily requirement:	One tablet will supply the minimum daily requirement for an adult.
Name and place of business:	John Doe 550 Broad Street Chicago, Illinois

Pharmacy Corps in Army!

PHARMACY in this country is to be congratulated in finally securing a Pharmacy Corps in the Army. The fight for the inclusion of this Corps is almost as old as this nation itself. The organization of the Pharmacy Corps will take some time, but now it is an actuality, and a dream of the future.

Beeswax Supplies Scant

DOMESTIC beeswax production continues at normal levels of three and one-half million pounds per year, but imports, generally averaging four to five million pounds per year, are declining. In addition huge quantities of beeswax are being used for adhesive tape and ointments for the Armed Forces. It is hoped that domestic production might be increased to as much as five million pounds by getting the smaller beekeepers to produce wax. These smaller operators, who comprise about twenty per cent of the country's beekeepers, have not been paying any attention to the wax which is an insignificant by-product in normal times. But now that the wax is needed directly for the war effort, it is expected that much of this normally wasted wax will be recovered.

Penicillin Allocated

EVEN though the production of penicillin is very small, the production has been placed under allocation by WPB so that the Armed Forces of the country will be certain to obtain what supplies there are.

Government Vitamin Purchases

SOME idea of the extent to which the government needs vitamins for the Armed Forces, Lend-Lease, and other uses is indicated by purchases made June 30 of 432,000 ounces of ascorbic acid from Chas. Pfizer & Co., and 256,512 ounces of ascorbic acid from Hoffmann-LaRoche, all at one dollar per ounce. In addition 4,638,000 multivitamin tablets were purchased from the International Vitamin Corporation. These tablets are packed 1,000 tablets in wide-mouthed amber blake bottles, and are priced at $2.94 per 1,000 tablets.

"Citro-Carbonate" Eliminated

BECAUSE the mention of a private registered trade name as if it were a term in general use might tend to destroy the property rights of the owner company, the WPB eliminated the Upjohn Company's trade-mark, "Citro-Carbonate" from paragraph (e) (1) under the heading "column 3" of the citric acid Allocation Order M-231. This column specifies the primary products required to be listed in filing Form PD-600 under the terms of the order.

Alcohol Subsidy

THE OPA has made arrangements with Defense Supplies Corporation for a subsidy costing probably $8,000,000 to hold existing ceilings on sales of ethyl alcohol for essential civilian uses and to protect present ceilings on military and civilian items in which alcohol is a basic raw material. Under the plan, WPB will allocate for the purchase by the DSC all alcohol produced from grain by industrial alcohol plants in addition to that presently being purchased by the corporation from converted distilleries, at prices which will assure producers a fixed profit over actual production costs. DSC will then resell to the industrial plants at the present base ceiling price of 48 cents per gallon that portion of the alcohol which WPB determines is necessary for essential commercial requirements. This arrangement has been necessitated by the fact that the Commodity Credit Corporation discontinued sales of corn on April 1, and on July 1, discontinued sales of wheat to alcohol pro-

(Continued on page 41)

ABRASION OF TEETH BY DENTIFRICES

By SIDNEY EPSTEIN, D.D.S., and M. L. TAINTER, M.D.
San Francisco, Calif.

THE modern study of dentifrices and dentifrice materials was initiated in 1907 by Miller, who first reported cases of exposure and devitalization that resulted from the abrasive action of the dentifrice and tooth brush. He demonstrated on teeth mounted on plaster-of-Paris blocks, with an ordinary tooth brush, that, by crossbrushing the labial surface of the extracted teeth with various dentifrices popular at that time, it was possible to reproduce the characteristic lesion of tooth brush dentifrice abrasion.[1] A considerable number of dentifrices that he tested cut the teeth rapidly and nearly all cut to some extent. Even precipitated chalk wore the dentin away rather quickly, and prepared chalk, which contains variable amounts of harsh impurities, was still more abrasive. An excellent review of the desirable attributes of dentifrices was published by Gurley in 1913.[2]

In 1917, Gies reviewed the status of dentifrices, and brought forward cogent criticisms of some of the more popular dentifrices available at that time.[3] Later, Van der Merwe built a motor-driven machine in which teeth were brushed with natural bristle brushes running in a slurry of various common dentifrices.[4] Many products well known today were included in his study, although the formulas for most of these undoubtedly have been modified many times in the fifteen years since then. The amount of abrasion that he reported with some of these was quite large as compared with what has been observed recently from products of the same name. However, his results are difficult to compare with later ones, since the amount of pressure on his brushes could not be estimated and his gage for measuring the abrasion permitted only very coarse readings.

In 1929, Bodecker studied a particularly abrasive product being sold at that time, and pointed out that it had sharp-edged crystals which would be injurious to the teeth.[5]

The most recent additions to the dental literature in this field have been the contributions of Kitchin and Manly. Their studies were made under commercial auspices and the results have been exploited in extensive advertising campaigns for a new liquid dentifrice. In essence, Kitchin found, by surveying 200 patients in a dental clinic, that the degree of cervical exposure increased with age.[6] In those persons with an exposure of 1 mm. or more, there was an increased incidence of cuts transverse to the long axis of the tooth, which might have been caused by the abrasion of a brush. Evidence that this might be due to brushing was obtained indirectly by dividing the patients into one group with good oral home care and a second group in whom the mouths were obviously not well kept and in whom the teeth were seldom brushed. In the latter group, the amount of abrasion in those persons showing substantial cervical exposure was less than in those showing good oral care. Unfortunately, no observations were reported to show whether these abraded teeth, reaching as high as 42 per cent of the total, with cuts in excess of 0.5 mm. in depth in the age group 40 to 49 years, showed an increased incidence of caries, or whether mouths in which the abrasion was extreme had greater numbers of filled or missing teeth; so that the extent to which these grooves had impaired the vitality or the normal functioning capacity of the teeth involved was not established. It also was not demonstrated that these grooves were produced by any dentifrices of the composition of those now on the market. In fact, in view of the decreased abrasiveness of commercial dentifrices in recent years, there is a distinct possibility that the grooves which Kitchin reported as especially numerous in the older age groups were the result of damage sustained many years ago and unlikely to be caused today.

Manly compared the abrasion of cementun or dentin by ten commercial dentifrices with that of an unnamed liquid product.[7] The teeth were mounted in a casting and brushed with a motor-driven brush. Each tooth was measured directly and its contour recorded photographically before and after the brushing process, and the amount of abrasion determined by the differences in the measurements. The teeth, before mounting, were preserved in formaldehyde, and were dried at room temperature before being cast into a Wood's metal cylinder. Apparently, Manly failed to appreciate that teeth absorb fluid for many days after being dried and

From the Department of Physiological Sciences, College of Physicians and Surgeons, a School of Dentistry.
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Cleaning of teeth with dentifrices calls for a certain amount of abrasive action. How much this abrasiveness is in different products has long been open to question. An attempt has been made to answer this question.

that measurements made during this period will show progressive increases in size until a new equilibrium or constant stare of hydration is reached. He reported that the average abrasion from the liquid dentifrice was – 8.8 microns. In other words, the teeth were 8.8 microns larger at the end of the abrasion period than they were at the beginning. This clearly indicates that there was considerable swelling in these teeth, although the magnitude of this cannot be judged from the data presented. Therefore, it is not possible to tell how much abrasion there actually was of the teeth brushed with the liquid dentifrice.

The pastes and powders compared with the liquid caused an average abrasion of 498 microns. The discrepancy between the abrasion from the liquid and the pastes and powders would not have been nearly so striking if the total true abrasion had not been partially counterbalanced by the swelling factor. However, there can be no doubt from these observations that the pastes and powders did actually abrade more than the liquid preparations and the published photographs give ample additional evidence that such was the case.

The liquid dentifrice presumably used in these studies depends for its cleansing powers on a sulfonated detergent made from higher alcohols, the one in question probably being sodium alkyl sulfate, since the Council on Dental Therapeutics reported in 1941 that Teel contained 2 per cent of this cleansing agent, together with 9 per cent glycerine, 31 per cent alcohol, gums and certain other materials of lesser importance.[8] The alkyl sulfates and related products have come into the dentifrice field relatively recently, the first scientific report on their useful properties in dentistry having been given by Kitchin and Graham in 1937.[9] In 1939, it was reported from our institution that these products were extremely powerful in depressing epithelial cells, being effective in concentrations below 0.002 per cent.[10] However, their activity in this regard was not much greater than that of the soap usually present in dentifrices when the cencentrations used were taken into account. An extensive study of the systemic and local irritant effects of such products was made by us the same year. The general conclusion was drawn that, although the sulfonated detergents were more irritating than soap, the concentrations used were sufficiently low to warrant the conclusion that the prospect of irritation was rather remote.[11] As their use also had no important systemic toxic effects, the possibility of chronic poisoning from repeated swallowing of small amounts of the saliva seemed to be unimportant.

Method

As part of a survey of the abrasive effects of dentifrice ingredients and of the factors in abrasion, we have made tests of the abrasive action of about sixty commercial products in comparison with that of a standard precipitated calcium carbonate U.S.P. on human teeth. For this purpose, we have used the abrasion-testing machine described by us previously.[12]

In brief, the technic was as follows: Three mandibular molars were mounted in an upright position on each of a series of cast metal plates. The four tips of the cusps of each tooth, or twelve for each plate, were measured for height above the under side of the plate, with an extremely sensitive dial gage. Then the cusps were abraded with a tooth brush for 200,000 strokes in a slurry of the compound in question and remeasured. Special precautions were taken throughout to maintain a state of constant hydration, since it was found that the amount of swelling or shrinkage of the tooth in being changed from one liquid to another might be large enough to obscure some of the abrasion produced. The wear on a total of seventy-two cusps was measured by combining six runs of 200,000 strokes each, according to a round-robin procedure previously described, which exposed all the teeth to the abrasion of all the dentifrices and control materials.[13] In this way, the variability of the teeth themselves was largely cancelled by having all the teeth used for each individual product in a given run. Since the eighteen teeth used in such a round robin still might not be numerous enough to be completely representative of teeth in general, a standard of reference of precipitated calcium carbonate U.S.P. was always included as one of the materials and the abrasion calculated in terms of percentage of the abrasion caused by this chalk. For each test, there was calculated not only the amount of abrasion produced, but also the standard error of that value, in order that

the possible variability could be judged. These standard errors must be taken into account in attempting to draw a conclusion as to the relative abrasiveness of any two products.

The product in question, if a paste or powder, was mixed with just enough 50 per cent glycerine in water to bring it to the thickest consistency, when it would flow readily over the surface of the tooth during the brushing procedure. If too dilute a slurry was used, the coarser particles might partially settle to the bottom of the cup and the true abrasive power of the preparation would not be revealed. If too thick a slurry was used, the brush would wipe this off the surface of the teeth, and thereafter complete abrasion would not be secured. The agitation from the brush, together with the viscosity of the slurry, prevented sedimentation adequately, so that no special stirring device was necessary.

We have demonstrated previously that variations in the concentration of the slurry do not appreciably modify the amount of abrasion.[12] The 50 per cent solution of glycerine in water was used as the liquefying material, since this did not evaporate appreciably during the twenty-four hours for the usual test. The teeth were soaked in this solution after mounting for a sufficient number of days to reach a constant size before they were used in the tests. A few dentifrices tested were supplied for this purpose by the manufacturers, the remainder being obtained locally at the time of use. The results obtained are presented according to types of products tested.

Table 1.—Relative Abrasion of Teeth by Commercial Tooth Powders*

Tooth Powder	*Amount of Liquid Added Per Cent*	*Mean Abrasion Per Cent*	*Standard Error of Mean Abrasion Per Cent*
*Arm and Hammer Sodium Bicarbonate	33	47	— 9.3
Craig-Martin	33	47	— 9.0
Fuller's	40	67	— 9.4
Pycope*	29	68	—13.7
Revelation	57	69	—10.4
Pepsodent	38	70	—10.3
Nordenta	38	72	—13.5
Aluminum Hydroxide-Breon	40	85	—12.4
Pebeco	46	85	—10.7
Leslie's Iodized Salt	22	88	—12.8
Calox	43	92	—17.5
Detoxol	37	92	—12.4
Zanol*	33	92	—15.5
Listerine	48	95	—12.1
Calcium Carbonate Precipitated Control*	67	100	—17.3
Caroid	58	112	—10.3
Ephraim*	47	118	—17.7
Iodent No. 2	33	152	—29.1
Williams	37	162	—18.3
Dr. Lyons	38	166	—24.0
Iodent No. 1	33	187	—31.6
Squibb	50	201	—29.9
Pepsodent Polishing Agent	36	227	—28.8

*In Tables 1 and 2, abrasion is recorded in terms of percentage of abrasion by precipitated calcium carbonate U.S.P., used as a standard of reference, in 200,000 strokes on eighteen human teeth for the commercial products, and 150 teeth for the control calcium carbonate. The products marked with a star are accepted by the Council on Dental Therapeutics. Fifty per cent glycerine in water was used as a liquefying agent.

In Table 1, the amount of abrasion by the powders is recorded in terms of percentage of the control calcium carbonate. Included in this table is "Pepsodent Polishing Agent," which is not a dentifrice for lay use, but a special powder of 93 per cent sodium metaphosphate and 7 per cent tricalcium phosphate, described in Accepted Dental Remedies for 1940.[13] Aside from this product, these powders had an abrasion range from 201 to 47 per cent of the control calcium carbonate, approximately two-thirds being less abrasive than U.S.P. chalk. The most abrasive of the entire group of powders was only twice as active as the chalk, which probably does not represent too great a degree of abrasive power.

Table 2.—Relative Abrasion of Teeth by Commercial Tooth Pastes

Tooth Paste	*Amount of Liquid Added Per Cent*	*Mean Abrasion Per Cent*	*Standard Error of Mean Abrasion Per Cent*
Hydrogel-Breon	22	42	— 7.1
Benetol	37	56	—12.9
S. S. White	26	61	—15.3
Castilla	17	67	— 8.7
Ephraim*	33	75	—13.5
Pebeco Regular	33	78	—11.7
Iodent No. 2	33	80	—12.0
Craig-Martin*	33	82	—13.1
Pepsodent	33	83	—11.6
Dr. Strasska's	33	86	—12.0
Worcester Salt	33	88	—15.8
Listerine	33	91	—14.6
Kolynos*	29	96	—11.5
Fuller's	33	99	—20.8
Calcium Carbonate Precipitated,Control	67	100	—15.0
Zanol*	17	101	—26.1
Colgate	33	116	—16.2
Ipana	33	116	—17.4
Iodent No. 1	33	120	—18.0
Lactona*	17	123	—20.5
Pebeco open formula	17	127	—24.0
Detoxol	17	128	—19.3
S. T. 37	22	131	—18.3
Squibb	33	138	—17.9
Regnum	17	142	—39.5
That's Mine	22	144	—18.0
Forhan's	17	151	—33.3
Bost	33	156	—23.4

The "Pepsodent Polishing Agent" at 227 per cent was not unduly abrasive in view of the fact that this is designed for "prophylaxis" at the chair and therefore would be used on any person only infrequently, and would be applied uniformly to the surface of the tooth if used in a rubber cup or rotary brush.

Pastes

In Table 2, the abrasion produced by a similar group of tooth pastes is recorded. Again the abrasion falls within about the same range, 42 per cent being that of the least abrasive paste and 156 per cent that of the most abrasive.

It seems that there was a slight tendency for the pastes to be more abrasive than the powders. However, there are twelve commercial products represented by both pastes and powders in the two series. Comparison of the relative abrasion of the paste and powder of each of these pairs reveals that there is no consistent tendency for one to be more abrasive than the other. In a few instances, the difference between the paste and powder is

greater than would be expected if the same major ingredients were used in each. It may well be, therefore, that, in these, the manufacturers use different grades of abrasive materials in the two preparations rather than the same formula for each, modified only to the extent necessary to produce a paste from the powder.

Baking Soda and Salt

In an attempt to learn something of two soluble salts frequently used, and over which there has been some controversy as to possible injuriousness as dentifrices, a commercial brand of household table salt (NaCl), or sodium chloride and the Arm and Hammer Brand of sodium bicarbonate ($NaHCO_3$) were tested along with commercial dentifrices. Sodium chloride had an abrasive value of 88 per cent; sodium bicarbonate, a value of 47 per cent. Both are significantly lower than the control chalk and are only moderately abrasive. Here, for the first time, is a controlled comparison of these readily available household products that can well be used as dentifrices; first, because they do have some abrasive or polishing action and, second, because they produce a chemical change in the adherent mucin deposits, changing them to soluble and more readily removable sodium mucinate.

Liquids

In Table 3 are presented the results of tests of six liquid dentifrices. With one exception, their abrasion was only from one-sixth to one-half that of the control powder. However, it will be noted that one, namely "Vray," caused an abrasion of 110 per cent, which was more than that of the other liquids, and even possibly slightly greater than that of the control calcium carbonate powder. This product consists of a suspension of solid powders in a viscous liquid, so that it is intermediate between the true liquids and the semisolid pastes. In addition, it seems to have some unique chemical property, since the metal plates on which the teeth were mounted turned bright after having been exposed to Vray. This occurred despite the fact that the plates were not hit by the brush and were exposed only to the chemical action of the product. This effect is not due to acid in this dentifrice, since measurements with a glass electrode showed that this one was not more acid than the others. (Table 3.) There is probably some constituent, such as a reducing agent, in this product which is not in the other dentifrices studied and which causes it to brighten the metals.

Table 3.—Relative Abrasion of Teeth by Commercial Liquid Dentifrices and Certain Control Mixtures*

Preparation	*pH*	*Number of Teeth Tested*	*Amount of Liquid Added Per Cent*	*Mean Abrasion Per Cent*	*Standard Error of Mean Abrasion*
Teel	5.75	36	5	17	— 3.0
Cue	4.81	18	20	30	— 5.9
Pepsodent Liquid	5.65	18	20	34	— 3.7
Nu-Sol	6.25	18	20	44	— 9.0
Craig-Martin	4.15	36	0	49	—12.8
Vray	5.11	54	0	110	—17.0
50% glycerine in water	5.55	36		64	—17.0
Calcium carbonate precipitated, control	8.50	105	67	100	—14.0
1.5 gm. sodium alkyl sulfate, 20 gm. calcium carbonate precipitate, 50% glycerine in water (40 cc.)		54		59	— 8.8

*Abrasion recorded in terms of percentage of abrasion by precipitated calcium carbonate U.S.P., used as a standard of reference. Where necessary, 50 per cent glycerine in water was added as a liquefying agent to obtain the proper consistency for test.

Included in this series of observations for comparison are the results of brushing the teeth only with the liquid used (50 per cent glycerine in water). This series might be considered a control on the amount of abrasion caused by the wet brush. The abrasion was 64 per cent (Table 3). In other words, a synthetic bristle brush of the type used, when lubricated by glycerine in water, abraded the teeth approximately two-thirds as much as did the medicinal grade of calcium carbonate used as the standard of reference. In contrast to this, the other liquid preparations, except Vray, were much less abrasive than even the glycerine in water. In fact, the abrasion produced by the least abrasive of these was less than one-third that caused by the glycerine in water and only about one-sixth that caused by the calcium carbonate. Therefore, it appears that these liquids presumably get from the sulfonated detergents a lubricating action which permits the bristles to slip easily over the tooth and cause less wear. An alternate possibility might be that they soften the bristles of the brush to such an extent that a lesser abrasive action occurs. However, we have seen no evidence that brushes used for these particular detergents are unusually soft at the end of the run. In addition, natural hog bristles, when wet, are softer than the synthetic, and yet have been demonstrated by us to cause more abrasion that the synthetic bristles used here,[12] so that softening of the bristles seems an unlikely explanation

Alkyl Sulfate

To determine whether the alkyl sulfate detergent in the liquids actually has the high lubricating power suggested by these results, a special test was made in which, to the control calcium carbonate, was added sodium alkyl sulfate in a concentration similar to that in the liquid dentifrices. It was observed (Table 3) that the amount of abrasion produced by the calcium carbonate under these conditions was reduced to 59 per cent of that in the control employed on the same teeth from the same chalk alone. In other words, the alkyl sulfate definitely diminished the abrasion produced by the solid powder by about one-half, or to about the level of that caused by the wet brush alone. This, therefore, is consistent with the suggestion that the reduction in abrasion produced by the liquid dentifrices (Table 3) was due, at least in part, to the alkyl sulfate. It is also probable that the gums present in the liquid dentifrices contributed to this lubricating action.

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CONTRACEPTIVE PREPARATIONS

By M. A. LESSER

DESPITE the opposition which for centuries obstructed the legal dissemination of information concerning birth control, there is nothing new about the idea of planned births, as it is now preferably called. Indeed, the use of contraceptive measures probably dates back to the early history of mankind.[1] Thus, a formula for a contraceptive procedure, the earliest known written reference to the subject, appears in the Petrie or Kahuers Egyptian papyrus of 1850 B. C. Moreover, a reasonably effective formula, as viewed by modern standards, appears in the famous Ebers papyrus of 1550 B. C. Aristotle spoke of ways and means of birth control and Dioscoridies also had something to say on the subject in 60 A. D. The ancient Chinese writings listed contraceptive methods and the early Arabian physicians, the leaders of medicine during the 13th century, mention similar procedures.[2]

Today, public opinion favors the spread of accurate information concerning planned births and the means of achieving this end. As pointed out by Stone,[3] one of the leaders in the planned birth movement, over 90 per cent of the women who come to clinics seeking information admit that they had used some contraceptive methods previously. More recently, in a series of studies on contraceptive methods, Stix[4] expressed surprise at the discovery that "untutored methods of contraception are used quite extensively and with a considerable degree of effectiveness even by those groups who, for one reason or another, are referred for expert contraceptive advice."

Obviously, the use of contraceptive procedures is an established social practice. This is evident not only in the ever growing market for contraceptives, but more especially in the increasing number of birth control centers spreading throughout the country. From a much opposed start in 1923 with one clinic in New York, the number had increased by the end of 1939, a period of only sixteen years, to 539 birth control centers functioning under medical supervision; and these were distributed in 42 states.[5]

At present birth control is legal when prescribed by physicians in all but two of the states. In Massachusetts[6] and in Connecticut[7] the dissemination of contraceptive information remains illegal. In marked contrast is the fact that in three states, North Carolina, South Carolina and Alabama, birth control is part of the tax-supported public health services. There are indications that more states will provide similar facilities.

In his exhibit on "Contraception and Public Health" at the A.M.A. Convention last year, Gamble showed how these states were employing contraception to reduce: (a) deaths from tuberculosis, heart diseases, kidney disease, and other maladies; (b) maternal and child deaths from too frequent pregnancies; (c) hereditary or congenital diseases, especially syphilis; (d) malnutrition and deficiency diseases, by adapting family size to income; and (e) abortions, by making each child a wanted child.

Although other authorities[8, 9] have stated these aims in different ways, those outlined by Gamble are, in general, the purposes for which contraceptives are legitimately encouraged. The advantages already secured by the proper use of contraceptives is quite clearly evident in Warner's[10] recent observation in a series of cases that medically prescribed contraceptive advice had reduced the number of abortions by four-fifths; the majority of abortions having occurred in married women. In England, as facilities for contraceptive advice have become more widespread, there has been a noticeable progressive dimunition in the number of illegal operations.[11]

The records show that Greek and Roman medical men considered contraceptive practice as a legitimate phase of the healing art.[2] Many modern physicians have held a similar view. Warner,[10] for one, feels that "Contraception is a health problem of importance both to the patient and to the physician and involves the welfare not only of the individual but also of society." However, it was not until 1935 that the American Medical Association gave its official sanction to the study of contraception. Last year, the Council on Pharmacy and Chemistry[12] voted to consider contraceptive drugs on the same basis as other drugs.

In the meantime, and for many years past, such organizations as the Birth Control Federation of America, Inc., the Committee on Maternal Health, and other groups, as well as interested pharmaceutical

Now that the American Medical Association is seriously considering the question of contraceptive preparations, it would be well for manufacturers in this industry to keep abreast of the latest developments in this type of product.

manufacturers, have studied the problem both in the laboratory and in the clinics, developed tests for contraceptive efficacy and established standards for contraceptive materials and procedures. The methods and materials used in contraceptive practices have been many and varied. Dickenson,[8] one of the outstanding leaders in the field, divides the chief methods for the control of conception into three groups: (a) protection for each occasion or birth control; (b) prolonged protection or arrest; and (c) permanent protection or sterilization without unsexing. In the first group belongs: withdrawal, condom, douche, vaginal chemicals such as vaginal jellies, suppositories, tablets, etc., and vaginal occlusive devices such as pessaries, cervix caps, tampons and sponges. In the second group he lists: celibacy, deferred marriage, abstinence, lactation, safe period, intra-uterine devices, hormones, spermatoxins, heat to testicles, irradiation and reversible operations. In the third category fall such procedures as vasectomy, irradiation, tube-closure and hysterectomy. For obvious reasons, the present discussion is almost completely limited to the first group.

Comparisons of efficiency of the several birth control procedures have been made from time to time. However, a study of these several reports indicates that there are many factors to be taken into consideration—factors referrable not only to the method but to the person using it. Thus, people being what they are, the use-effectiveness of any method will vary from group to group according to the regularity of use, excellence of materials and correctness of technic.[8] When all of these factors are taken into consideration, a high order of effectiveness often results. Thus, Warner[10] found that the use of a vaginal diaphragm lubricated with a contraceptive jelly or cream was 97.6 per cent effective in her series of cases. Where failure did occur, it could be traced to such human elements as improperly fitting or wrong type of pessary, improper use, careless technic or lack of use.

Conversely, the type of material employed may be responsible for the contraceptive failure. For example, Beebe and Overton[13] observed that, after a comparison of the effectiveness of diaphragm plus jelly (88 per cent effective) with that of a foam powder (63 per cent effective), there could be little doubt that the difference was one of method rather than of patients.

The types of contraceptive preparations in which pharmaceutical manufacturers will be interested include those products which cause immobilization of spermatozoa either by the formation of a mechanical barrier or by the action of a chemical spermatocide, or both. These may or may not be intended for use in conjunction with purely mechanical agents such as pessaries, tampons, sponges or the like. There are several forms in which such contraceptives may be dispensed; among them being jellies, creams, suppositories, foaming or effervescent tablets, douche powders or solutions, and dry powders.

Of course, standards and specifications for contraceptive preparations have been suggested by various authorities.[14, 15, 16] Typical are those set up by Baker, Ranson and Tynen,[17] who believe that the ideal contraceptive should possess the following characteristics: (a) Inexpensive; (b) unaffected by ordinary range of climate; (c) contains no volatile or odorous substances; (d) non-irritating to the vagina, cervix or penis; (e) without pharmacological effects if absorbed into the blood stream; (f) should contain a surface-tension reducing substance to assure spread to all vaginal folds and crevices; (g) should kill spermatozoa at S/8 or lower concentrations, in an alkaline or acid medium; (h) the spermatocide should diffuse rapidly out of the vehicle into the semen; (i) should be small, and easily portable, (j) solid enough to use without a special application; and (k) non-staining. To this might be added certain physiological and psychic elements suggested by Cooper.[18]

Few if any of the modern contraceptive products meet these ideal specifications, but tests and studies are constantly under way to improve these agents. Although in the ultimate analysis only actual use of a contraceptive will determine its worth, laboratory tests are of value to presage the effectiveness of such preparations. Although the factors requiring consideration are known[8] and several test methods have had useful application,[19, 20] there are no accepted standard spermicidal tests. More recently attention has been

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OIL OF CORIANDER

A SURVEY

By DR. ERNEST GUENTHER
Chief Research Chemist, Fritzsche Brothers, Inc., New York, N. Y.

BOTANICAL DESCRIPTION

Coriandrum sativum L. (fam. *Umbelliferae*) is an annual herb with an erect, branching stem, growing to a height of about two feet and carrying compound leaves. The small flowers are white or rose colored, the fruits globular, and composed of two concavo-convex mericarps. The flowers appear in June. The fruit or, as it is commercially called, the seed ripens in August. Overground parts of the green plant, particularly the leaves, possess a rather peculiar and disagreeable odor. However, the dried seed is distinguished by an agreeable, warm, somewhat spicy aroma and is, therefore, employed for flavoring all kinds of food products, sauces, soups, baked goods and confectionery, as well as alcoholic liqueurs, mainly gin. The volatile or essential oil, to which the pronounced odor of coriander seed is due, may be extracted from the seed by steam distillation. The oil is used extensively in the flavor and perfume industries.

HOEING CORIANDER

HABITAT AND RANGE

Coriandrum sativum L. is a native of Southern Europe, Asia Minor and the Caucasus where it has been known since time immemorial. It not only grows wild but is cultivated extensively in many regions of the world which possess a suitable climate. The principal producers of coriander seed are Soviet Russia, Hungary, Poland, Rumania, Czechoslovakia, and Morocco. The main producers of coriander oil are Russia and Hungary.

Althausen, Boruff, Gamlin, Koenig and Landes[1] wrote a comprehensive and interesting study on the physico-chemical data of the different types of coriander seed. These workers succeeded in establishing definite standards, among them ultra-violet absorption spectra of the essential oils and emission spectra of the seed ashes, by which they claim it is possible to approximate or define the geographical origin of a sample of coriander seed subject to inspection.

In a previous paper, the writer[2] has given a detailed account, based upon own observations, of coriander seed and oil production in Hungary. Therefore, the following pages are devoted to a description of the newly created domestic coriander industry upon which our food, beverage, pharmaceutical and perfume manufacturers must now rely for supplies of seed and oil.

SOIL CONDITIONS

According to Crooks and Sievers,[3] coriander may grow in a wide range of soil conditions but grows best in a deep and fertile garden loam of limestone origin. An excessive amount of water or conditions responsible for acid soil are unfavorable. Too much nitrogen may cause delayed ripening or prolong the progressive ripening period and reduce the maximum yield.

CLIMATIC CONDITIONS

Coriander matures within ninety days and should have a continuous, uniform supply of moisture and a fairly even temperature throughout the growing season. The plant thrives best in a sunny location. Rain or wind, during the harvest period, may be very damaging to the seed which shatters easily.

PLANTING, CULTIVATING AND HARVESTING[4]

According to Stockberger,[5] the soil should be well prepared before planting. For field cultivation, the

seed is sown in rows 3 feet apart, but if the cultivation is done by hand, the distance between the rows may be reduced to 18 inches. The seed should be sown thickly in order to insure a good stand. When well up, the plants are thinned to stand 4 to 5 inches apart in the rows. Cultivation must continue until the plants flower, about two months after planting.

When most of the seeds have ripened, the plants are cut with a scythe or a mower, preferably in the early morning while still moist with dew. This prevents seed shattering. The plants are partially cured in small cocks in the filed, the drying being finished in a barn loft or under any suitable shelter. Finally, the seeds can be threshed out and cleaned.

According to Crooks and Sievers,[6] the seed should be planted in early May or as soon as there is sufficient moisture and warmth in the soil for germination, but after the danger of frost has passed. Seed should be planted about one inch deep at the rate of 10 to 15 pounds per acre, in rows 15 to 30 inches apart. The seed might be planted broadcast, but for the difficulty encountered with weeds. Cultivation is much the same as for any truck crop requiring frequent and light cultivation to keep out weeds, some hand weeding also being required. Coriander does not compete successfully with weeds; besides, the final product must contain no foreign matter, the presence of which may add undesirable flavor. Plantings made early in May will usually bloom in about nine weeks and mature seed in the latter part of July.

The same authors[7] report that the ripening of coriander fruit is progressive, which characteristic causes some difficulty in the harvest. The harvest may start when approximately one-half of the total fruits formed on the plant have turned gray. Harvest at a later stage risks excessive shattering of the mature seeds, whereas an earlier harvest leads to considerable loss from immature seed. A high yield could very likely be obtained by pulling the plant and stacking it in a drying barn or in the field with unbels turned toward the center of the

THRESHING CORIANDER IN KAPOSFO

stack. By this method many of the seeds will continue to mature from food reserves in the stalk, and the mature seed will drop to the center of the stack where it can be collected. Such a method of curing produces a superior quality as well as maximum yield but involves more hand labor than mechanical methods. Harvesting by machinery may be done with a field mower or binder. According to reports, grain combines have been used with some success in the Soviet Union. Because of the loss from shattering and the hazard of unfavorable weather, it is doubtful that a combine could be used with profit in any part of the United States, except possibly in some favorably irrigated sections where no rain occurs during the harvest season. The dried fruits are stored or marketed in bags. In case of storage, fumigation would probably be necessary to prevent insect damage.

YIELD OF SEED PER ACRE

From experimental plantings it is estimated that the yield of coriander seed would range from 500 to 800 pounds per acre. Yields as high as 1,100 pounds have

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PHYSICO-CHEMICAL DATA ON AUTHENTIC CORIANDER OILS

Physico-Chemical Constant Determined	Country of Origin of the Coriander Seeds from which Oils were Derived						
	England	Czechoslovakia (Moravia)	Morocco (Unbleached)	Morocco (Bleached)	Hungary	Poland	Roumania
Refractive Index at 20°C.	1.4641	1.4644	1.4658	1.4689	1.4644	1.4643	1.4648
S.G. 20°/20°	0.872	0.871	.....	.....	0.871	0.871	0.871
S.G. 20°/4°	0.871	0.870	0.873	0.879	0.869	0.869	0.869
Optical Rotation/ dec. @ 32°C.	+10.8	+10.6	+9.5	+4.0	+10.6	+10.4	+9.6
Acid Number	0.82	1.81	1.63	9.65	0.86	2.1	1.47
Ester Number	12.2	16.4	19.7	19.3	13.0	11.5	6.1
Acetyl Value	65.3	46.6	34.3	36.7	41.0	42.0	45.2
Solubility in 70% Alcohol	Cloudy below 2 volumes. Clear in 2 volumes or more.	Cloudy below 2½ volumes. Clear in 2½ volumes or more.	Same as English	.....	Same as English.	Same as English.	Same as English.
Color	Colorless.	Colorless	Colorless	Brownish-yellow	Colorless	Colorless	Colorless
Bouquet	Characteristic residue like oleates and high molecular weight fatty acids	Characteristic residue"sweet" like orange terpenes	Characteristic decidedly humic undertone	Characteristic residue has turpentine character	Characteristic residue like oleates and high molecular weight fatty acids	Characteristic residue"sweet" like orange terpenes	Characteristic residue has a ginger note. RCHO high

JULY ALLOCATIONS

Acetic Anhydride: Requests were granted in full for plastics, aspirin, acetanilid, acetophenetedin and all other uses for which it was requested, with the exception of cellulose acetate yarn and staple fiber which were cut 15 per cent.

Aluminum Chloride, Anhydrous: The current supply of anhydrous aluminum chloride was adequate and all requests for essential uses were granted in full.

Ascorbic Acid: Granted 100 per cent to the following medicinal, food fortification and research.

Benzene: Granted in full for phenol, styrene, diphenylamine, camphor, monochlorbenzene, dichlorbenzene, medicinals, rubber chemicals. Granted in part for aniline (90 per cent), anthraquinone (85 per cent), solvents (83 per cent), and miscellaneous chemicals (56 per cent).

Bismuth Chemicals: Allocations were made on the following basis: Medicinal use—all requests of 50 pounds or less granted in full; 100 per cent of requests for use in anti-syphilitic preparations; 100 per cent of requests for use in individual prescriptions; 80 per cent of 1942 use (adjusted for inventory) for general pharmaceutical manufacturing. Industrial uses (small amounts) were granted 80 per cent, based on 1942 use and adjusted for inventory. Cosmetics were granted 50 per cent based on 1942 use and adjusted for inventory (no large amounts involved).

Caffeine: Granted in full for medicinals. Granted in part for beverage use (approximately one-half of average monthly 1941 consumption, adjusted for inventory, materials obtained on toll agreement and doubtful importations).

Inventories of caffeine for medicinal use in the hands of pharmaceutical compounders were allowed on approximately a 90-day basis; in the hands of distributors and jobbers on approximately a 60-day basis.

Citric Acid: Manufacturers of food products were allocated citric acid on the basis of 17.3 per cent of their use in the third quarter of 1941. Citric acid for the manufacture of beverages was allocated on the basis of 15 per cent of their third quarter use in 1941. Manufacturers of effervescent salts and citrate of magnesia were allowed 17.3 per cent of their use in the third quarter of 1941. Citric acid for chemical manufacture, other than the uses mentioned above, was allocated in full.

Ethyl Acetate: Granted in full for drugs and pharmaceuticals, for denaturants, for ethyl alcohol distributed pursuant to M-30, and for chemical manufacturing. Granted in part (50 per cent) for moisture-proof cellophane. Denied for all other civilian uses.

Formaldehyde: The following end uses were granted 100 per cent: adhesives, chlorine, disinfectants and insecticides, drugs and pharmaceuticals, dyes and intermediates, embalming fluids, explosives, fungicides and insecticides, hexamethylenetetramine, inventory leather, metal tubing, paper, paraformaldehyde, pentaerythritol, photographic chemicals, polyvinyl resins (M-10), processed oil, phenolic resins, resale, research and rubber. Granted in part for the following: casein resins, 80 per cent; miscellaneous, 80 per cent; miscellaneous resins, 80 per cent; protective coatings, 80 per cent; substitute oils, 80 per cent; textiles, 80 per cent; urea resins, 75 per cent.

Glycerine (Administered by Food Distribution Administration: FDO 34): Granted 100 per cent for uses allowed under Orders M-139 and M-246. (1) Drugs and pharmaceuticals—standard proprietary pharmaceuticals, cough syrup and liniments (60 per cent base period); gelatin capsules and suppositories (100 per cent of requests); U. S. P., N. F. & N. N. R. preparations (60 per cent base period); basic chemicals (100 per cent of requests); bottled glycerine (limited to 1- and 2-ounce bottles); drugs and pharmaceutical preparations (60 per cent base period). (2) Explosives (100 per cent of request). (3) Synthetic resins, other than M-139 and M-246, and ester gums (allowed for same end uses as are allowed by Protective Coatings Section WPB for resins under M-139 and M-246). (4) Rubber products (100 per cent of requests). (5) Gaskets and cork products—crown liners (none); gaskets (cork, 80 per cent of request, fiber, 100 per cent of request); cork products other than crown liners (80 per cent of requests). (6) Cellulose films, cellophane (45 per cent base period); meat casing (70 per cent of request); caps and bands (50 per cent base period, not allowed for alcoholic beverage closures). (7) Glassine and greaseproof paper, glassine (90 per cent base period). (8) Printers'

As chemicals become increasingly critical or easier as regards the needs for prosecution of the war effort, supplies for civilian needs are lessened or increased. Manufacturers will do well to keep posted as regards the possibilities of future supplies of raw materials.

rollers (90 pre cent base period). (9) Printing supplies, duplicating film, ink (50 per cent base period); duplicating rolls (80 per cent base period); stamp pad, writing and drawing ink (50 per cent base period). (10) Textiles, dyes (100 per cent of request); printed cloth (25 per cent base period); dyeing and printing (25 per cent base period); surface active agents (25 per cent base period); sizing (25 per cent base period); wool oil (none); textile oils (none for wool, allowed only for rayon and acetate); cutting oils (100 per cent of request). (11) Leather products (40 per cent base period). (12) Adhesives, books and magazines (60 per cent base period); envelopes (60 per cent base period); coating, lining, and sealing compounds (60 per cent base period); tablets and pads (none); shoes (100 per cent of request). (13) Paper other than glassine and greaseproof, sensitized (100 per cent of request); substitute for leather (40 per cent base period); others (40 per cent base period). (14) Emulsifier for margarine (100 per cent of request, limited to 0.06 per cent). (15) Miscellaneous chemicals and other uses—triacetin (100 per cent of request); cutting oils and emulsifiers (100 per cent of request); sealing compounds other than adhesives (100 per cent of request); embalming fluids (limited to 1,150 pounds); lubricants (100 per cent of request); fluids (100 per cent of request); plasticizers (100 per cent of request); packing compounds (100 per cent of request); reconstructed oils (none for wool oil, allowed for rayon and acetate); welding electrodes (100 per cent of requests); soldering flux (100 per cent of request); research (100 per cent of request); cements, paste and tape (screen end use); core oil (none); all others (based on essentiality of end use). (16) Resale as glycerine—(for sales under 1,150 pounds, as permitted under FDO-34).

Uses denied are as follows: cosmetics; dentifrices; lotions; beverages; flavors; candy and all edible products, except margarine; gum; shaving cream; tablet and pad adhesives; tobacco; emulsifiers for shortening; beverage crown caps; protective coatings for most civilian uses; soaps; shampoos and hair tonics.

Glycols: Ethylene glycol requests for cellophane were cut 20 per cent. Anti-freeze allocations made according to previous plans. All other requests granted in full, except for excessive stocks or inflation.

Diethylene glycol allocations for tobacco humectant were made according to previous schedule. General textile, chemical manufacturing and general plasticizer requests were cut 33 per cent. Resale requests and producers' small-order allowances were cut 50 per cent.

Triethylene glycol requests for general plasticizers and resale were denied. Chemical manufacturing and small-order allowance requests were cut 50 per cent.

Propylene glycol tobacco requests cut to 10 per cent of schedule. Tooth paste and cosmetic requests were cut to schedule, adjusted to current conditions; food and flavors were cut 50 per cent; producers' small-order requests cut 40 per cent; resale requests cut 50 per cent. All other requests allowed in full. All allocations made after adjustment for excessive stocks or inflated requests.

Mixed glycol requests for anti-freeze were cut 67 per cent. All other requests granted in full.

Hexamethylenetetramine: Granted for all uses for which it was requested.

Isopropyl Alcohol 91%: Granted in full for all uses for which it was requested.

Isopropyl Alcohol 99%: Denied for cosmetics and rubbing alcohol. Granted in full for all other uses for which it was requested.

Lithium Compounds: Granted in full for alkaline batteries and reagent and research use. Granted in part (5 per cent) for medicinals. All other uses denied.

Meta Para Cresols and Cresylic Acids: Small amounts allowed for medicinals and preservatives. Denied for disinfectants, insecticides and all other civilian uses.

Naphthalene: Granted in full for beta-naphthol, other dye intermediates, and chemical compounds. Moth prevention, including government orders, granted 100 per cent of 1941 base period.

Nicotinic Acid: Granted in full for research and nikethamide. Granted in part for medicinal (57 per cent); food fortification (70 per cent); feed and veterinary use (75 per cent); and conversion to nicotinamide (56 per cent). Allocations adjusted on basis of use during base period.

(*Continued on page 41*)

MANPOWER

By P. E. TILLMAN*
G. D. Searle & Co.

EVERYONE is surely aware of the proposed size of the armed services that must be available by the end of this year. It does not take a great deal of mathematics for each one of you to reach the conclusion that if the armed services are to withdraw an additional 2,500,000 men from industry, *and they will*, production must be accomplished by men who are over draft age, men who are physically unfit for services, and women. In anticipation of this, it is difficult to understand why more firms have not taken advantage of applying for and preparing Manning Tables and Replacement Schedules as authorized by the War Manpower Commission and the Selective Service System.

The advantage of preparing Manning Tables and filing the Replacement Lists are three-fold: they give an immediate picture of your expected replacement requirements, they indicate concretely the length of time you have to train replacements for those individuals subject to service, and they permit an orderly withdrawal of those men.

These summaries catalog each individual in your laboratories and manufacturing departments as to their exact current status and provision is allowed for you to determine, for each man eligible for service, his earliest date of possible replacement based upon the type of work he is engaged in, any educational background for such work, or any other particular circumstances such as special knowledge required for the position involved.

Upon completion, the Replacement Lists are submitted to the State Director of Selective Service for approval, and after approval is granted the employer then files form 42-A or 42-B for all men on the list with the individual boards who usually make every attempt to follow the approved replacement schedules in classifying and inducting each man. It is this condition which permits an orderly withdrawal of men eligible for service at the time specified, rather than the unexpected notification that your man is to report for induction at a given date.

We believe it advisable for every member-firm to take advantage of this wholehearted effort on the part of the selective service officials to cooperate with industry and at the same time raise our armed forces to their needed levels.

*From Mr. Tillman's report to the American Pharmaceutical Manufacturers Association.

Employment of Women

This industry has always employed a fairly high percentage of women in its operations. However, their work has been confined principally to the lighter filling and packaging operations because of their aptitude and dexterity in this type of work. Because of the shortage of available men, it has been found that women are entirely capable of handling many jobs which we have always had the preconceived idea was entirely a man's work.

One of our members reported at the Production Meeting held in Chicago, that they have been entirely successful in using women for all granulating operations. Other firms have used women for oder-picking and stock maintenance, the operation of compressing machines, sugar coating and for receiving materials. Many replacements have also been made in research and control laboratories as assistant technicians and control chemists. When it is considered that munition industries and plane manufacturers employ anywhere from forty to seventy-five per cent women in their operations, it appears entirely reasonable that with proper training, women can be used in a majority of the production jobs in this industry. We should do everything possible now to train women where possible. Further, it is well to remember that in view of the large number of women who have already been employed, a scarcity of available women is evident now.

Wage Stabilization

We have all been confronted with the various regulations and the President's most recent "hold the line" order with reference to this difficult problem. The object of course is to prevent inflation in this country with its resulting chaos. There will always be certain groups who feel that any wage stabilization order or price stabilization order is prejudicial to their best interests; consequently there cannot help but be attempts to break such orders for individual gain. We should do

The question of manpower will become increasingly difficult and complex as the needs of the Armed Forces and the war industries increase—as they will. Manufacturers in this industry must be alive to the steps they should take as their employees are taken away from them.

what we can to prevent such infractions. The penalties of paying wages or salaries in contravention to the wage stabilization order are staggering, as the Treasury Department has the authority to disallow as a tax deduction the entire wage or salary paid to the individual by the offending firm and levy their tax without the benefit of such deduction in addition to the other penal provisions.

Section 4010.7 of the regulations issued by the Director of Economic Stabilization permits increases in salary or wage rates as a result of individual promotions or reclassifications, individual merit increases within established salary rate ranges, operation of established plan of salary increases based on length of service, increased productivity under incentive plan and operation of a trainee system.

This was further clarified by General Order No. 31 of the National War Labor Board, issued May 26, 1943 effective June 1, 1943.

The purpose of this order is to remove any doubt as to what individual wage adjustments can be made without approval under General Orders 5 and 6 of the War Labor Board.

Individual wage increases cannot be made without Board approval after May 31, 1943, unless they are within a plan for making individual wage adjustments which conforms to one of the following conditions:—

1. It is contained in a collective bargaining agreement in existence on May 31, 1943, or
2. It conforms to the employer's practice prior to October 27, 1942, as demonstrated by (a) a plan formally communicated to the employees; or (b) the employer's payroll records; or
3. It was specifically approved by the National War Labor Board or one of its authorized agencies; or

If none of the foregoing conditions exist, however, an employer may make individual wage adjustments which conform to the following standards:—

A. Merit increases (within rate ranges)
   (1) Individual wage or salary rate adjustments made as a reward for superior quality or quantity of work.
   (2) No employee may receive more than two merit increases during any calendar year.
   (3) Except in cases where there have been substantial fluctuations in employment, no more than 50% of the average number of employees in a job classification may receive merit increases during any calendar year.
   (4) No merit increase may exceed 33⅓ per cent of the difference between the minimum and maximum rate of the appropriate range.

B. Automatic length of service increases (may be made only within rate ranges).
   (1) Individual adjustments usually made automatically at the end of specified period of satisfactory service.
   (2) Frequency of adjustments may not exceed four times in any calendar year.
   (3) Amount of adjustment may not exceed 25 per cent of the difference between the minimum and maximum rates of the appropriate range.

C. Promotions or reclassifications. These result from moving an employee into a different job classification. An employee promoted or reclassified may not receive a rate in excess of 15% of his rate on his former job or the minimum rate for the new job whichever is higher. If an employee has special ability or experience, however, he can be paid a rate within the appropriate range corresponding to his ability and experience.

D. Apprentice or trainee systems. Individual rate adjustments resulting from improvement over specified periods of time, of apprentices or trainee employed under a bona fide apprentice or trainee plan. Bona fide apprenticeship and trainee plans are defined in the order.

Rate ranges consist of clearly designated minimum and maximum rates in existence as of May 31, 1943. The order also sets forth general standards for established schedules. Each job classification must be clearly defined and described; the proportionate distribution of employees within and among rate ranges must remain substantially the same from quarter-year to quarter-year, except where there has been substantial fluctuation of employment, and no appreciable in-

crease in the level of production costs may result from individual rate adjustments.

Thus, unless a plan for making individual wage adjustments has been approved by the War Labor Board or is contained in a collective bargaining agreement or can be established as having been in effect on October 27, 1942, individual wage adjustments can only be made without approval if they need the standards set forth in the order. If an employer does not have one of the three types of plans above referred to, and wishes to make individual wage adjustments which are not in conformity with the standards set forth, he must obtain approval.

The order sets forth the requirements for obtaining approval of new schedules or changes in existing schedules. It should be noted that if there is a recognized or certified collective bargaining organization representing any of the employees, such organization must join in the application.

Your committee believes it wise, regardless of individual opinion that an increase may come under one of the above exceptions, to first obtain approval from the Regional Director of the War Labor Board or of the Salary Stabilization Office, whichever, has jurisdiction, securing his office's authority for such increase. Examinations two or three years hence by a field examiner can conceivably cause a great deal of trouble and aggravation through his disallowance for tax purposes of certain salary or wage payments where such increases are not properly supported. The written approval of those empowered to do so will obviate any such difficulty arising.

Personnel Problems

Your committee does not believe the subject of manpower would be complete without a discussion on personnel relationships between employees and employers. The day of the "laissez faire" attitude toward employees is past.

If the American economy is to continue to be strong and the American standards of living are to continue to be the highest obtainable in the world, it necessarily follows that the wages of American labor must be kept at the very highest standards possible. This is purely sound economics as it stands to reason if it is expected that more people are to enjoy a fuller living, and be able to purchase those items considered necessary luxuries, they must have the income with which to do so. It is the ability to purchase more than "bare living" that creates financial prosperity for all. It is essential of course for any employer in considering high standards of wages to maintain at the same time a proper return on invested capital and also provide adequate reserves for increased financial stability as well as for stabilization of payrolls during periods of recession.

The American people through their endorsement of the Federal Social Security program unqualifiedly support old age assistance. The provisions of the Federal Social Security laws as now written allow for only a very minimum standard of living if the individual has no other means of income. There has been a great deal of agitation, including a specific recommendation by the National Resources Planning Board, to increase enforced payroll deductions and larger payments on the part of employers to give more to ageing people. While any increase of these costs may be delayed for the duration, such increase is bound to receive a great deal of political attention after the war and undoubtedly will receive a great deal of public support. Rather than have some political group obtain credit for instituting such an increased program when the employer has to eventually pay the majority of the bill anyway, does it not seem wise to carefully scrutinize our own situations with the view of voluntarily making these provisions for those people who have served the better part of their lives in our particular firms? It is not enough to provide group insurance or group hospitalization plans; although they are extremely beneficial and worthwhile and should form a part of any well-rounded program. The big thing though is each employee's entire satisfaction and feeling of security in knowing that he will receive a legitimate and livable income when he no longer is capable of earning his compensation in competition with the younger generation.

Pension plans have been established by a considerable number of companies at this time, however more emphasis is required to considerably broaden their coverage. Many of the plans now in effect have been underwritten by different insurance companies, and many have been set up directly under company supervision by establishing their own Pension Trust. When handled on the latter basis, it will be found that it is not particularly difficult to achieve a sound actuarial basis to conform with the requirements of the Income Tax Laws, thereby making additions to the fund deductible for tax purposes. Considering, for example, only those people who have had continuous employment of from ten to fifteen years, it will be surprising to find that a relatively small yearly sum is required to effectuate such a plan and build up adequate reserves for back services.

The benefits realized through better personnel relations, greater efficiency and greater respect, will more than take care of the cost of such a program, and in addition the employer has that extreme satisfaction of feeling that he has accomplished something very worthwhile for the benefit of those who work with him.

We believe too, a great deal of consideration could be given in working out some plan for the full payment of wages or salaries of all employees when they are legitimately ill. Surely at such a time it must be very discouraging, particularly to the lower income groups not to receive any pay-check because of illness and at the same time have doctor or hospital bills to be taken care of. Our industry is engaged in seeking to improve the health standards of the people as a whole. Why then should we not take the necessary steps to make sure that those people engaged in our industry are properly cared for and receive medical attention when necessary.

Keeping Posted

(*Continued from page 27*)

ducers at the previously low prices. The action forestalled an increase in the ceiling price and averted pressure on the prices of many consumer and cost-of-living articles.

Caffeine and Theobromine Easier

BECAUSE present production of theobromine and caffeine is adequate for medicinal requirements, WPB has simplified the reporting forms for these two products. Exemption from authorization is provided for delivery for compounding into any medicinal preparation and for delivery of not more than two pounds of theobromine or caffeine by any supplier to any person in one month. A customer desiring to receive more than two pounds of either product within one month must file with his supplier by the fifteenth of the month preceding, a certificate of intended use in the form indicated in Appendix A of the amended order.

Viosterol Patent Void

THE renowned Steenbock patents held by the University of Wisconsin Alumni Research Foundation, which patents are said to have yielded royalties to the Foundation exceeding $7,500,000, for the production of Viosterol, were declared invalid July 1, by the Circuit Court of Appeals in San Francisco. Of the three judges of the court, two concurred in one opinion, and the third concurred in a separate opinion. The case was taken to the Circuit Court by Vitamin Technologists, Inc., on appeal from a lower court at Los Angeles, which court held the patents valid and infringed.

"Primarily it is to be noted that the claim applies to all ultra-violet rays," Judge Denman wrote in the opinion. "It is not confined to such rays as are produced by a particular medium, such as the quartz lamp. It includes, of course, the ultra-violet rays of the sun.

"Many years before the application, science had discovered that the sun's rays shining on cut alfalfa hay cured in the field was an antirachitic food for pigs.

"Steenbock himself verified the facts concerning alfalfa by the discovery that when cured out of the sunlight it lacked the antirachitic quality exerted when cured in the field.

"We thus have the inventor proving that it is from the ultra-violet rays of the sun that the alfalfa acquires its vitamin D, that is, by the process claimed by him as patentable.

"If the patent be valid, it is thus seen that the farmer is an infringer when he exposes his cut alfalfa to the ultra-violet rays of the sun long enough to make it antirachitic.

"So also the long previously established practice of the radiation of milk by the mercury vapor lamp would infringe the monopoly of Steenbock's patent because, admittedly, in its customary use it would produce in the milk vitamin D."

July Allocations

(*Continued from page 37*)

Nicotinamide: Granted in full for research. Granted in part for medicinal (40 per cent) and food fortification (99 per cent). Allocations based upon usage during base period.

Petroleum Cresylic Acid: Allowed in part for disinfectants (40 per cent). Denied for all other civilian uses.

Phenol: Allowed in part for medicinal salicylates (80 per cent of 1941 monthly average consumption), other medicinals (27 per cent); dyes and inks (70 per cent); chlorinated phenols (70 per cent); chemical manufacturing (60 per cent). Allowed in full for disinfectants and preservatives.

Phosphorus: Requests for phosphorus during the month of July were granted in full for boiler water chemicals, sugar refining, cheese, butter, fire retardants, matches, activated carbon and dyestuffs.

Requests for use as acid leavening agents in the form of mono calcium phosphate were granted 100 per cent of normal, using as a base period, the year 1942. In the form of sodium acid pyrophosphate, requests were granted 90 per cent of normal for the same use and the same base period.

Requests for use in yeast were cut 10 per cent, miscellaneous other foods, 30 per cent; food sanitation, 50 per cent; dentifrices, 15 per cent; soaps and detergents, 60 per cent; pharmaceuticals, 10 per cent; beverages, 15 per cent below the basis of 1941 shipments, and miscellaneous other uses were cut 40 per cent.

Phthalic Anhydride: In the allocation of phthalic anhydride for the month of July sufficient material was allocated to permit complete production of plasticizers and glycols in accordance with GPO M-203 and M-189. The allocation for alkyd, phenolic, para phenyl phenol and miscellaneous resins was based on past consumption, inventory and requirement figures submitted by the Protective Coatings Section of the Chemicals Division. Several requests were denied due to the fact that many companies were not filing forms correctly in accordance with GPO M-139. End uses such as resins for felt hats and underwear were denied. Requests for food and drugs were granted 100 per cent except for dehydrated castor oil and hair rinse. Requirements for rubber, oil demulsifying agents, miscellaneous products and dyes and intermediates were granted based on past consumption, inventory and end uses as defined on the PD-600 form.

Pyrethrum: Use of pyrethrum for agriculture was distributed in conformity of end use restrictions of Food Production Order No. 11, on the basis of past consumption of pyrethrum during 1941 and 1942.

Pyrethrum for civilian use was allocated on the basis of 10 per cent of consumption during 1940 and 1941, consistent with permitted end use.

Pyridine: Allowed in full for sulfa drugs and vitamins. Denied for water-proofing agents.

Riboflavin: Allocations were made as follows: civilian food enrichment (100 per cent); feed fortification (100 per cent); research (100 per cent); inventory (100 per cent—not to exceed 30-day supply).

It makes good sense. The contents of such jugs are usually expensive. So the jugs should be strong, sturdy and high in quality to stand up under the production and shipping hazards they must take to get your product where it's going safely.

Anchor Hocking jugs fill this bill, for every phase of their manufacture gets special attention, is constantly and closely watched and checked to assure you the highest in uniform strength and quality.

To provide dependable, airtight protection against leakage and evaporation Anchor Hocking makes two styles of metal caps, the ever popular C.T., the more dressy NKCT (no knurl), and for those products whose chemical composition requires special protection, Anchor Molded Caps.

H. Q. MILLS, one of Anchor Hocking's ablest and most popular men, has been a member of the Anchor Hocking family for 36 years.

ANCHOR HOCKING

GLASS & CAPS

ANCHOR HOCKING GLASS CORPORATION · LANCASTER, OHIO

MERCHANDISING NEWS and PACKAGING NOTES

Container Salvage and Supplies

In November 1941 this department noted for the benefit of its readers that R. H. Macy & Co. was offering five cents credit or cash for the return, in good condition, of every pink plastic bottle top or complete plastic container of its Little Shop toiletries.

In its June 1943 advertising Cutex is advising its consumers as follows: "Save your Cutex bottle tops and brushes. They may be scarce."

In an obviously inspired story in its June 30, 1943 issue, the N. Y. "Times" has this to say.

"Trade authorities do not favor suggestions that the cosmetics industry might stage a drive for the return of bottles by consumers, similar to that undertaken on tooth paste and shaving cream tubes. It was indicated that this has been given careful consideration, but unless the situation became very bad a drive of this kind would not be undertaken. It would be impossible to obtain necessary machinery to clean and sterilize the returned bottles, and an adverse psychological reaction might develop in consumers' minds, it was asserted."

These three paragraphs would appear to represent the history of cosmetic container salvage up to this point. Whether or not that is the last word, however, remains to be seen for there are those in the cosmetic industry who firmly believe in both the necessity and the practicality of container salvage. They are going to try out a salvage campaign in a few selected test areas to find out for themselves whether or not it is impractical and too expensive.

Certainly no one can deny that the container supply is the most critical in the cosmetic picture. The closure situation has been and continues to be bad despite all the work which has been done on it. But now the glass container limitation order focuses attention upon the seriousness of the situation in that direction.

In 1942 the glass industry produced 79,000,000 gross. During January and February it was producing at the rate of 90,000,000 gross. At that time it was authoritatively estimated that the industry would do about 92½ million gross and that the industry was about 7 per cent oversold.

As of July 1 the boys have revised their figures upward on both counts. It is now estimated that the glass industry is from 20 to 30 per cent oversold but that it can and will produce 120 million gross this year. Apparently they didn't know their own strength.

But of whatever amount they finally do turn out, it is further estimated that some 89 million gross is necessary as replacement for tin in the food field. That comes first with drugs second and you can make your own guess as to where cosmetics stand on the list and how much will be left for them in view of these figures. If you follow these figures, the cut to 65 per cent on glass for cosmetics really means nothing for the question immediately arises—where do you go to get your 65 per cent allowed? And then where do you get the closures?

N ANY OTHER NAIL POLISH IN THE WORLD!
ON DUTY
OFF DUTY
• Woman-at-arms or woman-in-arms, here are the nail polish shades of the hour! ON DUTY —for that feminine but pressed and polished look—dedicated by Cutex to girls in all the Services.
And OFF DUTY—deep, dark, daring—dedicated to you and your warrior on leave. Both head turners, both long wearers . . . see ON DUTY and OFF DUTY today! Only 10¢ (plus tax)—Put the savings into War Stamps!
P. S. Save your Cutex bottle tops and brushes. They may be scarce.
CUTEX
CUTEX

YOU CAN SAY THAT AGAIN...

"It's quite apparent that attention to detail receives plenty of detailed attention around here," remarked Mr. W., a recent visitor who was being shown through our plant.

That he should make such an observation is not surprising. If there's one thing to which we've always given the utmost attention, it's the small, seemingly unimportant operations that are so likely to be handled in a perfunctory sort of way.

A long-established Carr-Lowrey maxim is that "accuracy needs no excuses!" Consequently, from preliminary design to finished product, every order we receive, regardless of size, is accorded the most painstaking consideration by workmen jealous of their reputation for top quality craftsmanship.

Yes, YOU CAN SAY THAT AGAIN, Mr. W., "attention to detail receives plenty of detailed attention around here!" And you might add that it applies to every type of glass container we make, whether for cosmetics, drugs, household or food products.

CARR-LOWREY GLASS CO.

Factory and Main Office: BALTIMORE, MD. *New York Office:* 500 FIFTH AVENUE *Chicago Office:* 1502 MERCHANDISE MART

One thing the order will do is take the heat off the glass suppliers for with cosmetic manufacturers doing 20 to 30 per cent more business than ever before and trying to get the containers to take care of it, the glass manufacturer has been under terrific pressure in his efforts to take care of his customers on say the same basis as last year. Now, for four months at least, he can reply that all he can do is furnish 65 per cent.

So you pay your money and you take your chance. The pessimistic viewpoint is that by the middle of next year there will be no glass for cosmetics and salvage will be a must, impractical and expensive though it may be. The optimistic point of view is that the collection, sorting, sterilizing and re-examination involved in salvage represent an insurmountable job and one which would cost more than it would produce. Besides the containers will be available before the squeeze really gets too bad. The optimists' reasoning goes somewhat like the aforesaid story in the "Times," more of which follows.

"Production and delivery difficulties have been complicated by considerable duplication of orders for containers by trade users who wished to be sure of deliveries. An order for, say, 10,000 bottles placed with five different producers would work out to a total of 50,000 bottles, thus swelling abnormally the total backlog of business which the container manufacturers have on hand.

"As one of the largest users of glass containers, the cosmetics industry will be affected considerably by the WPB move. The four months period ending on Nov. 1 is ordinarily the time of heavy production for the Christmas holiday season. Despite this, however, some satisfaction was shown in the trade that the impending cut was 35 per cent, and not 50 per cent.

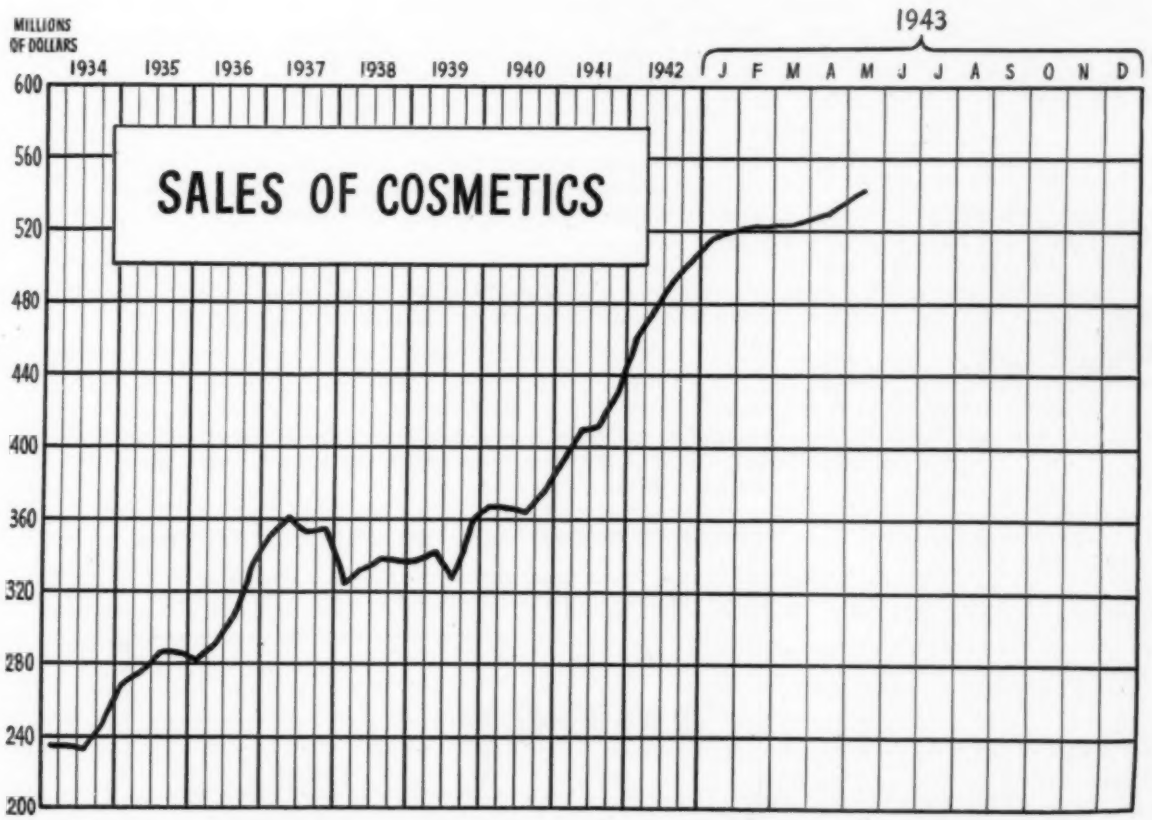
"While the specific provisions of the forthcoming order were not known in the trade, some expressed the belief that the regulation would be preliminary and of a temporary nature confined to the four-month period. The situation existing around during the latter part of October, it was felt, would probably determine continuance of the order or any changes in it.

"It is anticipated that when the restriction comes out it will not affect finished stocks of filled bottles or other containers. Thus, the 35 per cent cut in supply would not mean an equivalent cut in output. Inventories, it was suggested, can be so handled as to soften the impact of the reduction in new bottle supply, at least for a time."

More About Grocery Outlets

The number of supermarkets handling drugs has doubled in the last four years, according to "Super Markets Merchandising." Analysis shows that 508 supermarkets or 39.16 per cent carry cosmetics; 218 or 16.08 per cent carry proprietaries and 82 or 6.32 per cent have complete drug departments.

Another vitamin product for grocery distribution is now being marketed by Major Vitamins, Inc., New York. The package sells for 29 cents for 24 B-complex capsules. The copy leads with "Why you should buy vitamins at your grocer" and a footnote advises that they are also available at better cigar and stationery stores.



Sales of cosmetics for the twelve months ended May 1943 totaled $544,662,000, an increase of nearly $14,800,000 over the $529,868,000 for the twelve months ended April 1943.

☆

Wartime Closure Quiz

WITH ANSWERS THAT ANSWER YOUR CLOSURE PROBLEM

QUESTION: What is the *permanent* solution for users of closures faced with war shortages?

ANSWER: **CORK. Supplies of cork have increased to such an extent that WPB recently transferred it from Group 2 to Group 3 of essential materials, recommending its use as an alternate for critical materials . . . rubber, plastic, metal. Cork is available in sufficient quantities to supply present and future demands.**

QUESTION: Can manufacturers who do not have preferential ratings secure cork closures?

ANSWER: **Yes. An allotment of cork is made for civilian users.**

QUESTION: Why should the change-over to cork be made *now?*

ANSWER: **Restrictions governing critical materials are subject to sudden change. Many users of metal and molded closures face production stoppage when these materials are no longer available. *Convert to cork before it is too late!***

QUESTION: Where can closure users get dependable service and prompt delivery?

ANSWER: **DODGE. Dodge stocks of cork are larger than at any time in the company's history. Dodge facilities are adequate for supplying both military and civilian producers.**

QUESTION: Can Dodge design closures to fit particular requirements?

ANSWER: **Yes. For example, Dodge helped to design Pepsodent's new Dual-Top Cork . . . a closure which makes Pepsodent's wartime package *better* than its forerunners.**

Specialists in cork for more than four generations, Dodge understands the merchandising as well as the technical factors of packaging. Individualize your package with Dodge Cork Closures. Write for information.

DODGE CORK COMPANY, INC., LANCASTER, PENNA.

Dodge Milbossed Wood Top Corks can be furnished in various sizes and colors—plain or engraved with your name or trade mark.

DODGE *Closures*

Designed to Guard the Integrity of the Contents

The Cosmetic Trend

Christmas orders for cosmetic gift merchandise are running well ahead of last year. This is due in part to the widely spread policy "to buy early" which makes itself felt all over the retail market and has advanced buying dates for many articles as much as two months. In part also to the often expressed opinion that, with the lowering stocks of general merchandise, cosmetics may get more than their normal share of the gift demand. Volume will be highest for the manufacturer who gets an early start and has the goods to sell.

Buyers have sold their controllers the idea that there is little risk in early buying of Christmas stocks, as fashions are not likely to undergo much of a change, and that the ability of the manufacturer of gift merchandise to turn out a good article is more likely to get worse than better as Christmas draws nearer. This applies especially to containers where the current supply is better than fair now while later developments are certainly anyone's guess.

Gifts for soldiers and sailors will have to be held to smaller sizes than last year. There is every hope that present restrictions upon oversea shipments will be made less onerous at Christmas. But shipping space remains limited and manufacturers will do well to confine themselves to two contents in each package rather than last year's most common three. This is certain to have a general effect upon all men's gift ware. It applies less to gifts for women members of the uniformed forces.

Civilian war workers will make a strong contribution to the Christmas market in cosmetics. This offers unusual opportunities to the cosmetic counters to sell utilities in Christmas packages. Manufacturers, making these items, may do well to look around now and study what can be done to brighten their merchandise. Sleeves, colored closures, ribbons are suggested.

In view of the strong trend to reduce the selection of shades for powders, lipsticks, rouges, etc., gift packaging can be conveniently centered upon a few items in each line. This will eliminate the costly Christmas wrapping of complete lines, much of which was often thrown away at the end of the season.

Gift sets are looking as good as ever. Most will contain fewer items to preserve materials but buyers will have no reason to complain about quality.

Prices are approximately the same as last year at this time but buyers pay more attention to the higher priced articles in perfumes, gift ware and gift packaged goods. The large sizes are likely to find preference in utilities, war workers specialties and single articles for men.

Buyers proceed on the theory that supplies will be large enough to take care of the Christmas market but that it will be a good idea not to take too much of a chance. Deliveries are generally taken "when ready."

Post-War Stuff

Those of you who are making plans now for the post-war period, and who isn't, will be interested in the fact that the Department of Commerce has engaged in a comprehensive statistical study of the markets after the war and in the field of cosmetics estimates an increase of 36 per cent in 1946 over 1940, while its drug estimate is 44 per cent over 1940. This information is contained in a 46-page booklet, "Markets After the War," prepared by the Department and printed by the U. S. Government Printing Office. The same table estimates a 62 per cent increase in food, 165 per cent increase in radios, 140 per cent increase in passenger cars, and 170 per cent increase in locomotives and railroad cars, to mention just a few. The report emphasizes that this is not a forecast but simply an indication of the magnitude of increases all along the line if a high level of total output is achieved. "The given level of gross national product in 1946 is only for purpose of illustration. It is based upon the following arbitrary assumptions: (a) That the war and the immediate post-war reconversion period will be over before 1946; (b) that 96.5 per cent of those seeking employment will have productive jobs; and (c) that prices will be the same as in 1942."

The whole bulletin is completely objective in that it points out all the bugs in this method of projection. But it also points out that "many of the items are sufficiently accurate to serve as a preliminary basis for planning as well as a starting point for market analysis. Since a return of the 1940 volume of business would mean an inconceivably large number of unemployed, you need a means of visualizing a volume of business substantially above any pre-war year and translating it into potential markets for your product. You cannot avoid making decisions which involve assumptions as to this future volume. Granting its crudity and the urgent need for future refinement, this breakdown is a convenient tool."

It also goes further in pointing out statistical methods and tools for utilizing this breakdown in terms of an individual business and individual products. Statisticians and comptrollers should have a field day with this bulletin and we strongly recommend that they obtain a copy from the Department of Commerce.

Paper Box Simplification

The recently proposed simplification of paper boxes used by the manufacturers of toiletries and cosmetics for over-the-counter trade has been approved for promulgation, according to an announcement by the Division of Simplified Practice, National Bureau of Standards. The voluntary recommendation is effective from July 1, 1943, for new production.

The purpose of this recommendation is to reduce the amount of paperboard used for packaging toiletries and cosmetics. This is accomplished by establishing the maximum thickness of paperboard used for these boxes, by restricting the size of box in relation to the size of the contents, and by limiting the number of protective covers or containers. The recommendation also provides for simplification of designs to reduce frills which are wasteful of critical materials.

The reduction in the sizes of individual boxes should reduce the size of shipping containers for the same number of unit packages, thereby effecting additional savings in material, transportation and warehouse space. One large user has estimated that this simplification will enable him to effect annual savings of more than 150 tons of paperboard.

Mimeographed copies of this recommendation may be obtained upon request from the Division of Simplified Practice, National Bureau of Standards, Washington, 25, D. C.

Beauty in Oils

Schiaparelli is delving deeper into the realm of beauty with a new formula for a radiant complexion achieved with oils. This is a new and interesting departure for Schiaparelli both in the type of product and package design. That "natural" look which has begun to look like a trend, has inspired Schiaparelli to create these products.

"Shocking Radiance" is the name of Schiaparelli's four fragrant beauty oils for the face, eyelids, lips, and all-over skin loveliness. The oil for the face is a cleansing and conditioning oil. The face may be cleansed with it and left free of make-up, or if preferred, make-up may be applied. In either case the effect is natural, soft. The oil for the eyelids is used to give the eyes a dewy look, and the oil for the lips may be used before applying lipstick for protection, or after for added luster, or it may be used to remove lipstick. The fourth is for conditioning the body, leaving the skin soft and smooth. All of the oils are generously perfumed with Shocking thereby serving the triple role of cleansing, lubricating, and perfuming.

Shocking Radiance comes in handsome square cut crystal bottles. The labels on both the bottles and the outside cartons have been designed by Salvadore Dali, in brilliant colors of violet for the background with Shocking Pink lettering.

The oils which will be in colors, light violet for the body oil, light Shocking Pink for the face, green for the eyelid, and raspberry for the lip oil, are priced as follows: Body oil, 8 ounces, $5.00; face oil, 4 ounces, $4.00; eyelid oil, 1 ounce, $3.00, and lip oil, ½ ounce, $2.50.

Replaces Cologne

It is interesting to note that the House of 4711 has brought out its new Geranium Rose Concentrate to replace the Geranium Rose eau de cologne which was a favorite for so many years, and which the firm has been forced to discontinue temporarily due to restrictions. The nice thing about the Concentrate is that it leaves that cool, refreshing feeling even when used in very much smaller quantities than cologne. As a matter of fact, a dab on the arm, the back of the neck, the throat, in the midst of a heat wave, makes enthusiasm grow about Rose Concentrate. It seems to do everything that cologne did in a less lavish way of course, (but who wants to be lavish these days?), and still may be carried around conveniently in the purse, available at any time as a quick refreshant. Geranium Rose Concentrate comes in purse size bottles, and leather cases into which these fit snugly are also available for 25 cents extra. An attractive counter card holding twelve bottles is being furnished to dealers.

Victory Package

St. Joseph aspirin goes to a cardboard box for its victory package. It is described as a "ruggedly-hinged, cellophane-wrapped, cardboard box which is easy to open, closes tightly and is so designed that when closed it stays closed, thus, in ordinary use, preventing the spilling and spoilage of tablets.

Christmas Gift Sets

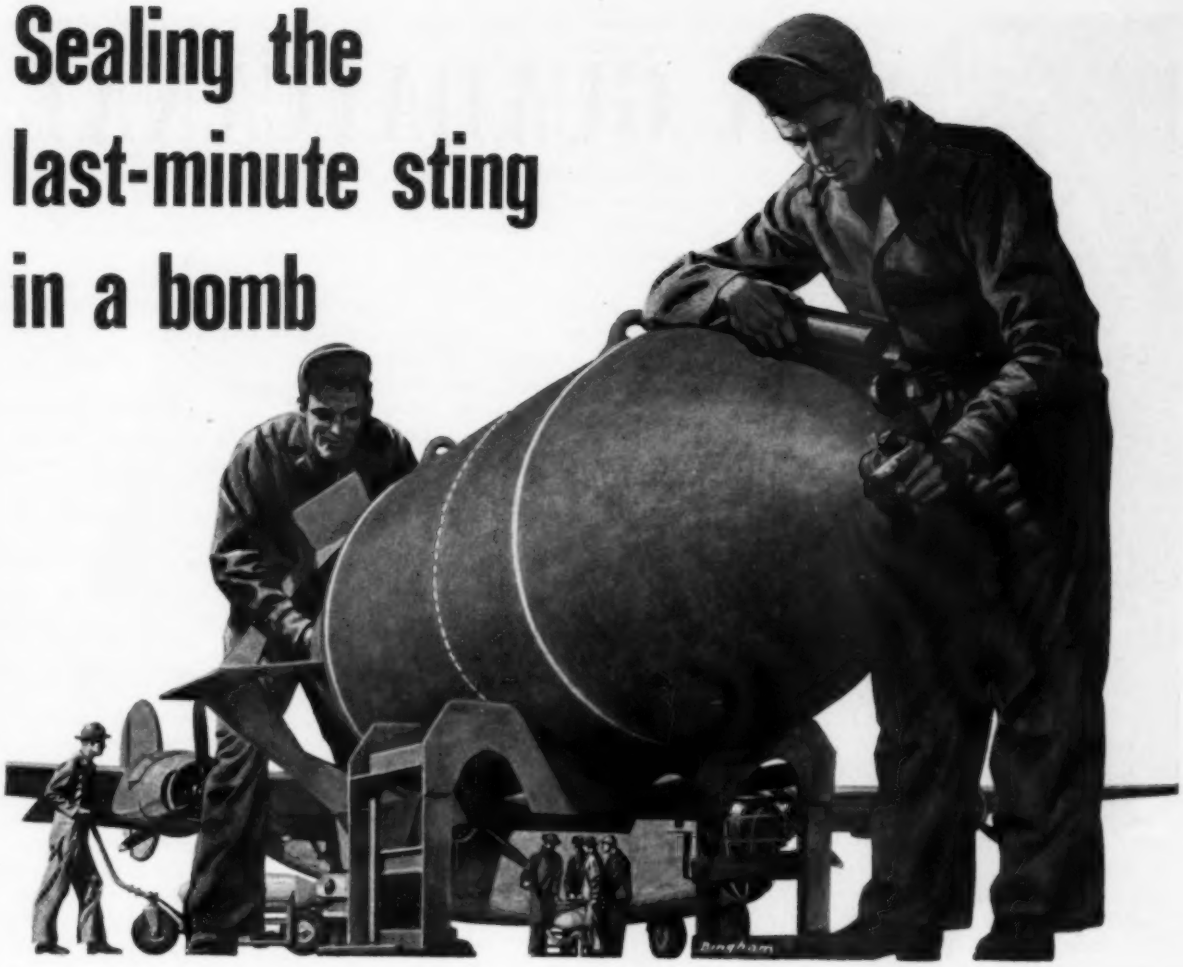
Christmas gift sets were completed earlier this year, and are now being shown. Many of the houses that in former years made up sets for holiday selling have discontinued this practice, but by and large, those that do a large gift set business, have managed to come through with attractive packages and interesting combinations.

Bourjois and Coty are usually the first to show Christmas merchandise. This year both houses are showing extensive lines of holiday merchandise. Bourjois has a number of attractive sets in the Skylark series ranging in price from $2.00 to $4.00, several Courage gift sets, and a large selection of Evening in Paris numbers. Coty's line of gift creations, as usual, centers around the four popular Coty perfumes, L'Origan, L'Aimant, "Paris" and Emeraude. Each of these fragrances has inspired an entire line of gift creations varying in size and content. An interesting fifth member is added to this quartet, "Muguet des Bois." A new departure in ensembles for perfumed accessories has been devised for this, and in keeping with the out-of-doors spirit of the fragrance, the ensemble has been done in beribboned straw baskets. Coty again offers a number of amusing novelties.

Luxor held an early showing of its merchandise the middle of June in New York, which included the "Fantasy of Flowers" series. Dusting Powder, bubbles, soap, cologne, rosebud soap, talc, all go to make up various interesting gift combinations in gay, flowery packages.

Yardley's collection of gift merchandise offers beauty bath sets that spell

Sealing the last-minute sting in a bomb



A "block buster" bomb is harmless . . . until someone opens a "tin can."

This can contains the bomb's sting —a fuse. Without it no bomb can explode. At the last minute before a raid, the fuse is taken from the can and shoved into the nose of the bomb.

This fuse has to be *right* when it goes into the bomb. That's why it's packed in a can.

A damp fuse could turn a costly bomb into a worthless dud. But the "bomb fuse" can, moisture-proof and air-tight, keeps each fuse safe and dry until it's needed.

Vital materials like this are riding off to war by the millions in America's favorite container. They — and the can—are working for American boys, helping them do a job and come out on top. The essential things you get in cans—food, fuel, medicine—are also going to the fighting fronts in cans.

Cans are tough. They don't break, chip or tear. They protect against water, dirt, light, insects. Things get there—*safe*—in cans.

The can that goes to war today will be back again . . . guarding the things *you* depend on. It'll be better than ever, thanks to the experience we're gaining as packaging headquarters for the boys in uniform.

CONTINENTAL CAN COMPANY

NOTE
TO WAR MANUFACTURERS

Metal containers are delivering the goods *safely*—foods, supplies, and bullets arrive ready for action. Continental is making millions of these cans along with other war needs, including plane parts.

Yet, rushed as we are, we can still take on more! Right now, a part of our vast metal-working facilities for forming, stamping, machining and assembly is still available. Write or phone our War Products Council, 100 East 42nd Street, New York.

HELP CAN THE AXIS—BUY WAR BONDS

EGGS A LA GUADALCANAL

RECIPE:
Dehydrate eggs (leave water in America)
Package in "Precision-Engineered" paperboard cartons
Convoy across Pacific (in about 1/10 the space)
Cook under coconut palms

With our fighting fronts thousands of miles from the nearest home port, it's a weighty problem to keep our fighting men well fed. But it's a less weighty (and less bulky) problem when eggs, vegetables and dairy products are dehydrated before they are loaded on to a ship.

An egg, for example, contains 65 per cent water. A potato, 78 per cent. Peas —74 per cent. But when dehydrated and packaged in light, specially-developed paperboard cartons, they save on an average of 90 per cent in cargo space—*and cargo space is of first importance today!*

★ ★ ★

Here, at Gardner-Richardson, we have developed specialized containers and paperboard to meet the needs of our armed forces, also to meet essential civilian needs. Some day these developments and improvements will be available for the more practical packaging of the products of peace.

The GARDNER-RICHARDSON Co.

Manufacturers of Folding Cartons and Boxboard

MIDDLETOWN, OHIO

Sales Representatives in Principal Cities: PHILADELPHIA • CLEVELAND • CHICAGO • ST. LOUIS • NEW YORK • BOSTON • PITTSBURGH • DETROIT

relaxation. While Charles of the Ritz's popular Moss Rose line again comes in for its share of attractive gift set combinations, and Tangee offers many popular-priced, attractively packaged gift sets. Of course, there are others, but these are among the early birds.

War-Worker Spending

The typical machinist whose 1941 weekly salary was $35 and who is now making $73.50 spends 92 cents weekly on beauty aids as compared with 23 cents in 1941, according to "Parade."

Packaging for Soldiers

Private Jack Galub has this to say about packaging for soldiers in June "Advertising & Selling." The first question with every purchase is, "Will this package fit into my pack?" So in designing packages for the service man, the designer would do well to: (1) Keep them sturdy. (2) Keep them small. (3) Use fast colors if possible. (4) Make them easy to handle.

A soldier's full field pack is a wonderful device, containing everything needed in the field from half a tent and blanket to a change of socks and underwear. In addition, the pack also contains dentifrices and shaving materials, and in packaging these products the manufacturer must study his market.

The war has pushed the can of tooth powder off the market. Metal today is needed for more important places than medicine cabinets and the soldier's field pack. Today the Army man is turning to tooth paste.

Colgate's can was a popular seller before the war, but its present colorful package makes it a loser at Army post exchanges. First, the elongated, tapering container is difficult to roll into a pack. Second, the bright red color runs and stains. It is also next to impossible to open the can without wasting some of the powder.

In shaving materials, sticks are preferred. However, if they cannot be obtained, tubes may be used. In any case, glass jars and cakes are ignored.

Barbasol is making new friends with its Service Man's Special. The package, which offers five razor blades and a substantial tube of cream for only ten cents, is a favorite with many.

Another opportunity to expand his market which no manufacturer should overlook is the increasing WAAC army. Many of the young women are doing their own laundry, shampooing their own hair and shining their own shoes—some of them for the first time. Here, again, compactness, durability and convenience must guide the manufacturer.

Glass containers of shampoo and hair sets are a problem to many WAAC personnel. Jars are easily broken and the constant dread of a service woman is that she will find shampoo all over her locker. From one member of the WAAC comes a suggestion for the development of a flake shampoo on the style of Lux.

Face-powder boxes that have removable covers also are a nuisance. Army women would prefer hinged covers or slit tops. Another WAAC suggests a flat, sturdy and inexpensive case that would contain full-size packages of rouge, powder and lipstick.

Skin Respiratory Factor

The entrance of Dr. George Sperti and the Institutum Divi Thomae of Cincinnati into the cosmetic field will be watched with interest. The highly scientific and ethical background of the sponsors makes their claim to having a skin respiratory factor in their products, one which cannot lightly be tossed aside. It is Dr. Sperti's contention that skin respiration plays an essential part in skin health. In the Institute's work with the biodynes, which are "intercellular wound-hormones" it has been discovered that there are different kinds of these biodynes. Some induce growth and reproduction of skin cells, and thus play a major part in healing of wounds and burns. Another type stimulates the cell's breathing. It is this latter type which is being used in the cosmetic products.

Institute workers discovered that healthy skin is characterized by ample respiration and that as various factors decrease this respiration the skin loses its fresh vital appearance. It is claimed that this respiratory-stimulating biodyne restores normal skin respiration and thus improves the skin's appearance. As a matter of fact, although it is not emphasized, it is believed by the Institute that usual cosmetics retard skin respiration. It will be interesting to see just how they approach the question of marketing their cosmetics with their scientific background and with the claims which they will probably make in connection with their findings. Nobody in this business can fold his hands and assume that technical progress in cosmetics, except for refinements, is at an end. The future of this, as well as any other business must depend upon scientific advancement and progress. Everyone eagerly awaits the "new-day" cosmetics and it could be that this is one of the first.

One more point in the plans for these cosmetics may be of interest. It is planned to meet the packaging problem, and packaging is a problem these days, with ceramic containers and closures. If this plan is followed it is probable that three manufacturing depots will be set up—one on each coast and one in the center of the country.

It's a Tough Life

"As a possible substitute, you should look into the melamine type of resins. The qualities of this material are not unlike those of phenolic resins but all molding equipment may not handle it. At the moment melamine resins are available and free." C. A. Willard, deputy chief, drugs and cosmetics section, chemicals branch, W.P.B., in an address before the T.G.A., May 13, 1943.

Urea and Melamine Aldehyde Resin and Molding Compound placed under allocation by W.P.B., Order M-331, June 16, 1943.

What Happened to Fletcher's Castoria

With this headline Centaur told the world what had happened in an advertisement published in every daily newspaper in the United States. The answer was "The sugar content of Fletcher's Castoria was reduced to conserve sugar under wartime conditions. A year ago, Castoria was made with this reduced sugar content and was up to standard in every respect. This year, in March, we again started production with reduced sugar.

"However, at that time a chemical change—harmless in itself—occurred in the characteristics of the water used in making Castoria. But this change, in *combination* with the reduced sugar, increased the degree and rate of normal fermentation. The more rapid fermentation retarded normal re-oxidation during the aging process, resulting in a product which caused nausea."

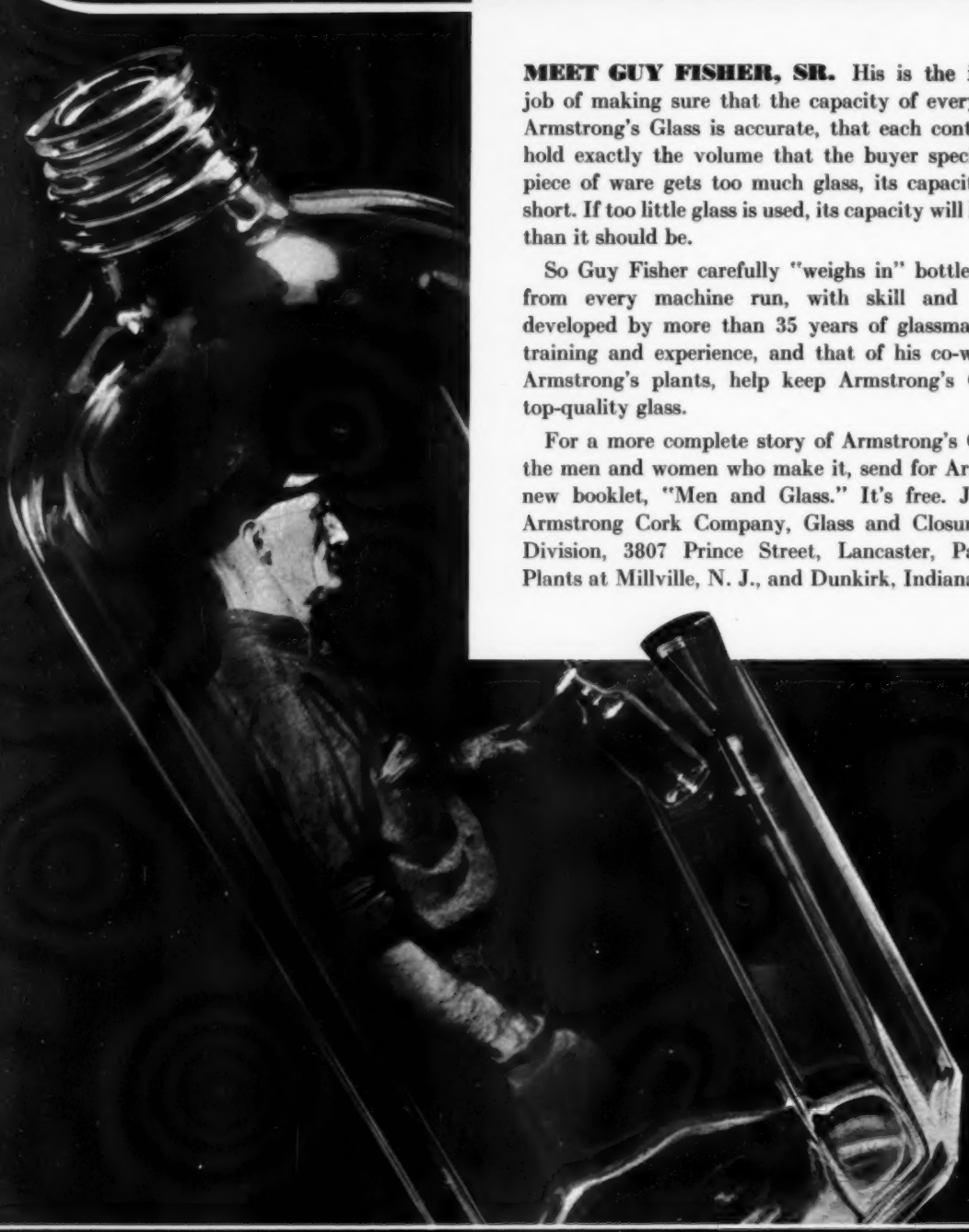
Now what happens everybody in drug merchandising circles is wondering. Will the net result be advantageous or the contrary to Centaur. Will Centaur's vigorous publicity and advertising campaign on this unfortunate occurrence pay off better than the usually adopted hush-hush procedure would have?

Teen Age Market

Of the teen-age girls studied by "American Girl," 79 per cent use hand lotion, 75 per cent use nail polish and 73 per cent perfume.

A QUART IS ALWAYS 32 OUNCES

. . . when glass craftsmen check capacity



MEET GUY FISHER, SR. His is the important job of making sure that the capacity of every piece of Armstrong's Glass is accurate, that each container will hold exactly the volume that the buyer specified. If a piece of ware gets too much glass, its capacity will be short. If too little glass is used, its capacity will be greater than it should be.

So Guy Fisher carefully "weighs in" bottles selected from every machine run, with skill and certainty developed by more than 35 years of glassmaking. His training and experience, and that of his co-workers in Armstrong's plants, help keep Armstrong's Glass the top-quality glass.

For a more complete story of Armstrong's Glass and the men and women who make it, send for Armstrong's new booklet, "Men and Glass." It's free. Just write Armstrong Cork Company, Glass and Closure Division, 3807 Prince Street, Lancaster, Pa. Plants at Millville, N. J., and Dunkirk, Indiana.

ARMSTRONG'S GLASS

and **ARMSTRONG'S CLOSURES**

LA CROSS

La Cross is introducing a new summer nail polish shade called Volunteer—a versatile, sparkling, go-with-everything red. Volunteer, along with the eleven other La Cross shades, will be sold in an attractive new package.

LA CROSS

WINTHROP CHEMICAL CO.

The Winthrop Chemical Co. Inc. offers Betasynplex "Niphanoid," a brand of synthetic vitamin B complex factors, for the medical profession. Betasynplex is a mixture of the five important members of the vitamin B complex which have been synthesized; namely, thiamine hydrochloride (vitamin B_1 hydrochloride), riboflavin (vitamin B_2 in soluble form), pyridoxine hydrochloride (vitamin B hydrochloride), calcium pantothenate and niacinamide (nicotinic acid amide). This combination of synthetic vitamins is supplied in a stable, rapidly soluble form, Betasynplex "Niphanoid." Three ampuls to a box.

WINTHROP CHEMICAL CO.

THE HOUSE FOR MEN, INC.

The House for Men, Inc. has developed new talcum containers, regular and travel sizes, that are described as leak-proof and moisture-proof. A specially designed sifter top fits snugly into the top of the container and is covered by a screw-type cap with built-in sealing device.

HOUSE FOR MEN, INC.

WRISLEY

Samba Toiletries by Wrisley are as gaily, rhythmically colorful as the South American dance which inspired them—dusky rose splashed with magenta and highlighted with bright yellows and blues. The lively fragrance comes in cologne, bath bubbles and bath talcum.

ALLEN B. WRISLEY

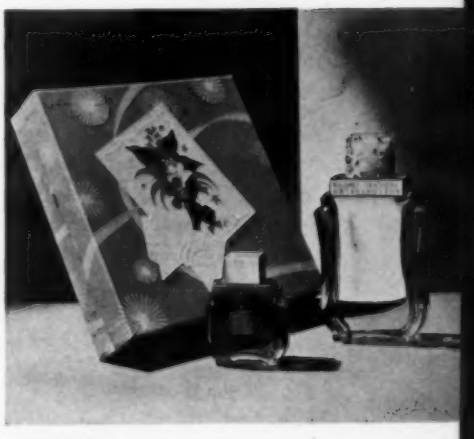
RICHARD HUDNUT

Richard Hudnut is introducing a powder-cake make-up in a handsome pink plastic case. Beauty Cake comes in five shades. The new pink plastic lipstick case to match, is an exact duplicate of the former DuBarry metal case.

RICHARD HUDNUT

LENTHERIC

Lentheric's "Anticipation" gift set of perfume and Bouquet Lentheric is selected from this firm's varied Christmas collection. The women's sets are charmingly effective in ice blue with starry snow crystals and pastel ribbon streamers, which give a gay, carnival effect. The gift items are set into a satin metallic fuchsia-toned background with white polka dots. On the cover of the set is a gift card of capricious design.



LENTHERIC

HANDLE DRUMS WITH CARE TO MAKE THEM LAST

Thanks for the cooperation you have already given us in keeping these valuable drums moving. Keep up the good work.

Remember—handle drums with care. The drums now in circulation must be made to last. Please observe these good handling practices.

. . . Be sure to replace both bungs. . . . Securely tighten plugs—but *go easy*—don't strip the threads. . . . Use proper size valves. . . . Do not use drums for other materials. . . . Keep them clean, but *do not rinse*. . . . Store them under cover—prevent rusting.

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

New York • St. Louis • Chicago • Houston • San Francisco • Los Angeles • Seattle

IMPORTANT—BILLS OF LADING

Be sure to list the number of each drum on your bill-of-lading when returning empty drums, and send a copy to Dow so you will receive prompt and full credit.

DOW

CHEMICALS INDISPENSABLE TO INDUSTRY AND VICTORY

NEWS

Companies

Harry Noonan to Retire

Harry Noonan, founder of the Drug Products Co., Inc., has sold a controlling interest to Joseph H. Moss of Seal-Sac, Inc., Fall River and New York, but will retain a stock interest in the company.

Mr. Noonan organized the company in New York City in February 1913. Late in 1920 the business was moved to Long Island City where it is still located in its own building. Mr. Noonan has

HARRY NOONAN

been general manager and president of The Drug Products Co., Inc. from its inception, and will continue as president and general manager until December 31, 1943, when he will retire from the active management, and with Mrs. Noonan will spend the immediate future at their home in Phoenix, Arizona.

He has been a prominent figure in national affairs in pharmaceutical manufacturing. He is one of the incorporators and a former president of the American Pharmaceutical Manufacturers Association and is chairman of its representatives in the National Drug Trade Conference, of which he is vice-president and a member of the executive committee. He also is the association's representative to the American Foundation for Pharmaceutical Education of which he is one of the founders and a director.

Mr. Noonan has also been active in general business circles and is a former director of the Queens Borough Chamber of Commerce. He was formerly president of the Queens Borough Rotary Club. He also plays at golf.

Henry R. Noonan, his son, now a captain in the U. S. Army Medical Depot at Savannah, Ga., will return to the business after the war.

Sperti, Inc., to Enter Cosmetic Field

Sperti, Inc., which is already marketing a burn ointment through drug channels is planning to enter the cosmetic field with products featuring SRF or skin respiratory factor. This adds another field for commercial exploitation to those already carried on by Institutum Divi Thomae, a research institution of Cincinnati, which uses its inventions to help pay for the pure research conducted by its laboratories at Cincinnati and Palm Beach. Dr. George Sperti is scientific director of the Institutum, and discoverer of biodynes, which are "intercellular wound-hormones" discharged by injured cells to stimulate the growth, breathing and reproduction of other cells. His work on skin cells has been widely publicized in the "Reader's Digest," the "Scientific American," and various medical and dermatological journals.

N. Y. Q. Committee

An executive committee which will now be in full control of the business of New York Quinine & Chemical Works has been appointed by the board of directors. The chairman is F. J. McHugh and the other members are: J. R. Lane, F. G. Lipiczky, Paul Mackin, Louis L. Pio and F. J. Reid.

American Home Buys Bartos

American Home Products Corp. has expanded further in the field of biological products through the affiliation of E. E. Bartos, Inc. of Locust Valley, N. Y., with Reichel Laboratories, Inc., American Home Products subsidiary.

The Bartos company manufactures and distributes a streamlined method for determining protein allergies through intracutaneous injections. Put out in a compact kit for doctors, the Bartos System permits making tests for protein allergies at one time, and with one hypodermic needle.

Manufacture of these products will be transferred to the Reichel Laboratories at Kimberton, Pa., and will be directed there by Dr. John Reichel, head of the laboratory bearing his name. The Bartos products will be marketed under the name of Reichel Laboratories Allergins—Bartos System. Elmer E. Bartos, founder of the system, will join the Reichel sales staff and will assist in a nationwide selling program to the medical profession.

Reichel Laboratories is one of the nation's leading producers of dried blood plasma for the armed forces. It is also turning out large quantities of typhus vaccines on government orders, and is operating 100 per cent on war work.

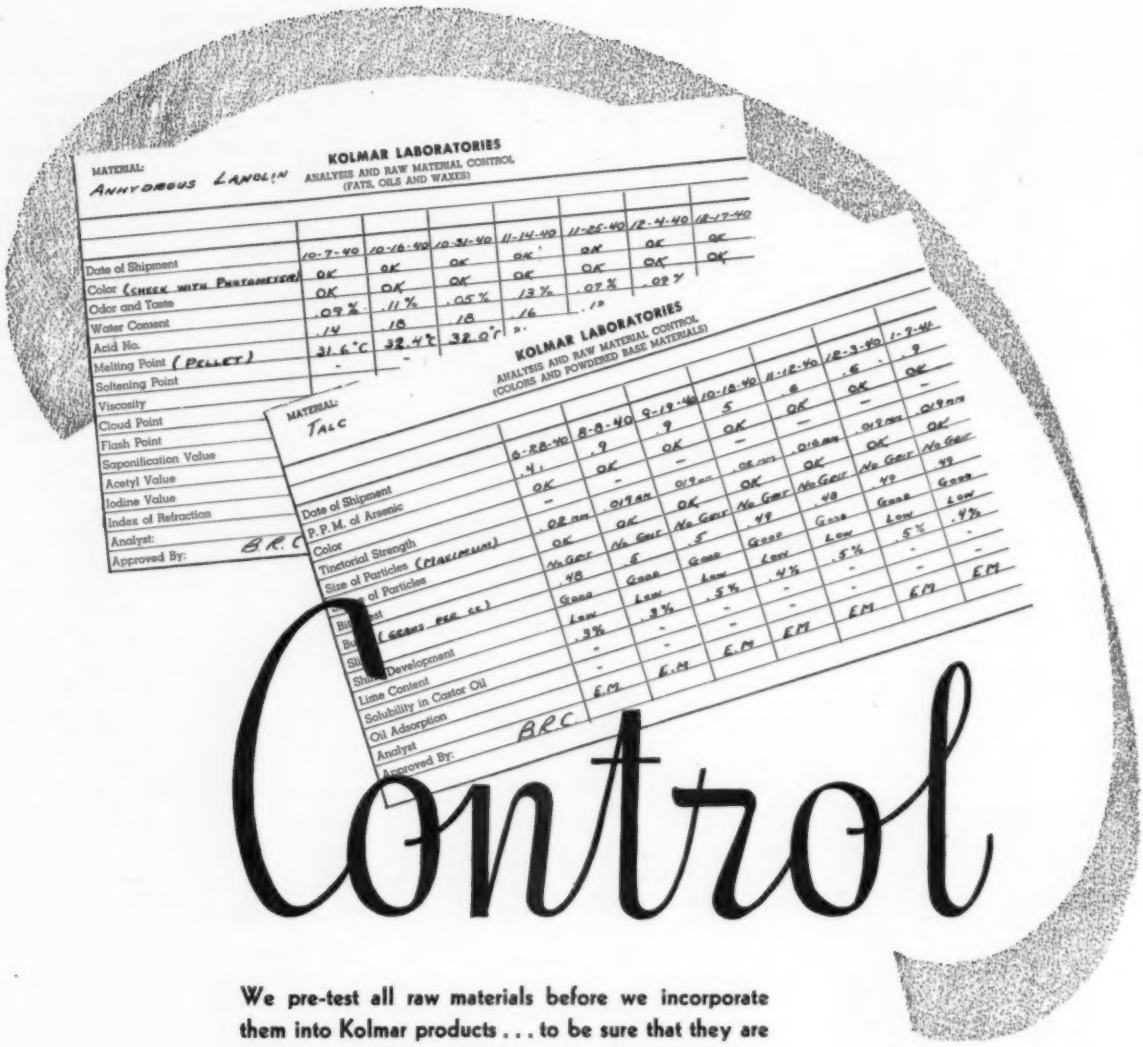
Casey Named Head of Unit

P. R. Casey, vice-president of the Kurlash Co., New York, has been appointed head of the cosmetics and toiletry unit. Chemicals and Drugs Branch, Office of Price Administrator. Mr. Casey who assumed his new position June 7, succeeds Edward P. Morrish, who left to join the American Home Products Co. Robert Deupree, acting head of the unit in the interim, has returned to his original position as economist for the three units in the Chemicals and Drugs Branch which handle drugs, cosmetics and soaps.

Seaforth in Cuba

Alfred D. McKelvy, president of Alfred D. McKelvy Co., maker of Seaforth for Men toiletries, has announced the establishment of a Seaforth office in Havana, to handle its growing Cuban business and survey the changing Latin-American market.

Mr. McKelvy points out that for the first time in inter-American relations, Latin-America has a favorable balance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(FATS, OILS AND WAXES)
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(COLORS AND POWDERED BASE MATERIALS)
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BRC

Control

We pre-test all raw materials before we incorporate them into Kolmar products . . . to be sure that they are up to our inflexibly high standards. And, because of this testing . . . YOU can rely on Kolmar uniformity

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MILWAUKEE • NEWARK

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Mr. Douglas Haggerty, 122 E. 42nd St., New York City
Mr. Warren Curry, 2504 Alton Road, N. W., Atlanta, Ga.
Mr. Norman Kole, 960 Merchandise Mart, Chicago, Ill.
Mr. R. F. G. Byington, 1260 N. Western Ave., Los Angeles, Cal.
Mr. Richard F. Spicker, 419 West Fifth St., Cincinnati, Ohio

of trade with the United States and can buy products above the class of bare necessities. Consequently, Seaforth is making its plans accordingly.

Amer. Home Appoints Frohring

W. O. Frohring, newly-elected director of American Home Products Corp., has been appointed special technical consultant to the corporation and its subsidiaries.

In his new post, Mr. Frohring will concentrate on research and development work in connection with new products to be introduced when the war ends and to free himself for his new duties, he has resigned as chairman of S.M.A. Corp. Mason, Mich., American Home Products subsidiary.

Winthrop Appoints Davy

Edward Dawson Davy, dean of the School of Pharmacy, Western Reserve University, Cleveland, has been appointed director of the pharmaceutical division of Winthrop Chemical Co., it has been announced by Dr. Theodore Klumpp, president. Mr. Davy will make his headquarters at the company's plant at Rensselaer, N. Y.

For the past twenty-one years, Mr. Davy has been associated with Western Reserve, serving as professor of pharmaceutical chemistry until his appointment as dean of the School of Pharmacy in 1940. From 1911 to 1914, he was assistant chemist for the Panama Railroad and the Isthmian Canal Commission.

He served on the Committee of Revision, U. S. Pharmacopoeia, from 1930 to 1940.

Peterman to Rubberset

As of July 1, sales and manufacture of products of William Peterman, Inc., a subsidiary of Bristol-Myers Co., will be handled by the Rubberset Co., Newark, N. J., another subsidiary, which is now engaged in the manufacture of paint brushes, shaving brushes, and hair brushes.

The Peterman products will be manufactured in a new Newark factory. They include Peterman's Ant Food, Peterman's Roach Food, and Peterman's Discovery. Sales of these products, which were formerly handled by Bristol-Myers Co., will now be under the direction of Robert H. Seltzer, of the Rubberset Co., who will be responsible for sales and advertising of Peterman products and Rubberset toilet brushes.

Van Riper—McK. & R. V. P.

La Motte Van Riper has been elected vice-president of McKesson & Robbins, Inc., in charge of advertising and publications. He has been associated with McKesson & Robbins, Inc., since January 1, 1929, and played an active role in the reorganization of the company, particularly as it concerned sales and advertising.

LA MOTTE VAN RIPER

Prior to his McKesson association Mr. Van Riper was vice-president and general sales manager of the Ajax Rubber Co. where he had served for nearly ten years, starting as district sales manager and finally becoming vice-president. He began his career with the Detroit Publishing Co. and subsequently was also manager of the United States Tire Co., with headquarters in Chicago.

Abbott Names Five Scientists

Dr. E. H. Volwiler, director of research, Abbott Laboratories, North Chicago, Ill., has announced the addition of five new members to its research staff. Dr. John C. Sylvester, from the University of Wisconsin, will do bacteriologic research; Dr. Kenneth E. Hamlin, from the University of Maryland, organic research; Dr. Howard H. Fricke, from the University of Pittsburgh, pharmaceutical research; A. Jean Heinsen, M. A., from the University of Illinois, biochemical research; and Dr. Guy Everett, from the University of Maryland, pharmacological research.

Costerg Returns

Henri Costerg of Les Parfums de Dana, Inc., has just returned from an extensive trip around South and Central America. In the course of his travels he visited the company s factories in Argentina, Uruguay, Chili, Peru, Colombia, Venezuela, Costa Rica and Mexico.

Award to W. C. Ritchie

The Chicago Ordnance District of the United States Army has awarded the Army Ordnance Banner to the management and employees of W. C. Ritchie & Co., Chicago, for "meritorious production" of war goods. It is believed that this is the first time the Army Ordnance Banner has been awarded to a package manufacturer.

The Ritchie company has devoted a large portion of its package manufacturing facilities to the making of heavy-duty, metal end fibre cans for transporting fuses and other Ordnance items. During the past year, the company has also made grenades, humidity measuring devices for the adjustment of machine guns on foreign fields of action, detonator nestings, ration packages, and a wide assortment of weather and oil proof containers for foods, industrial devices, etc. used in the war effort.

Women of Monsanto

"Women of Monsanto" is the name of a booklet written by Mrs. Loretta Moushey, assistant director of industrial relations of Monsanto. It is a handbook which has been prepared for the indoctrination and orientation of women coming into Monsanto's nineteen American plants, to take over jobs formerly filled by men exclusively. The booklet is generously illustrated with photographs of women on the job in Monsanto plants. Constructive advice is given to women workers under these headings: Your Health, Your Diet, Your General Well-Being, Your Safety, Lifting, Your Responsibilities.

McNally Joins Revlon

James H. McNally has joined the Revlon Products Corp., and is in charge of the purchasing. He was formerly with Best Foods for seventeen years. Mr. McNally succeeds William Morris who is now connected with Don Juan. Mr. McNally is assisted at Revlon by William R. Williams, Esther D. Sigal, and Harvey Auerbach.

Miss Lakritz Joins Florasynth

After her graduation from Northwestern University in June, Zena Wilma Lakritz, daughter of William Lakritz, executive of Florasynth Laboratories, Inc., and head of the mid-western division, joined the office staff in the Chicago office of Florasynth Laboratories.

Luckman Heads Pepsodent

Charles Luckman has been elected president of the Pepsodent Co., Chicago, succeeding Kenneth G. Smith, who becomes president of the board. Henry F. Woulfe and James A. Barnett have been elected vice-presidents.

Mr. Luckman started as a retail salesman after his graduation from the University of Illinois in 1931. He rose rapidly through all phases of the company operations and now, at 34, he is one of the youngest chief executives of large corporations in America.

Mr. Woulfe has been with Pepsodent for eighteen years. He started as assistant purchasing agent and prior to his election as a vice-president was general manager.

Mr. Barnett has just joined the company, coming from Sherman & Marquette, Inc. of whose New York office he had been manager. Before that he was an executive with Benton & Bowles, Inc., New York.

Vadsco Now Universal Labs.

On June 29, in Wilmington, Del., at a special meeting of stockholders, Vadsco Sales Corp., Long Island City, N. Y., changed the corporate name to Universal Laboratories, Inc., effective June 30, 1943. Universal Laboratories, Inc. will continue the business activities of the former Vadsco in the manufacture, sale and distribution, and packaging for its various subsidiaries known throughout the trade as V. Vivaudou for Mavis talcum and toiletries, Kerkoff for Djer-Kiss perfume, talcum and cosmetics, Delettrez for perfumes, creams and cosmetics, Kny-Scheerer for surgical instruments and hospital supplies, and American Druggists Syndicate for home remedies, vitamins and pharmaceuticals.

The management committee of Universal comprises John Glossinger, president; Henry W. Wittner, vice-president and treasurer; and Joseph M. Jaffin, secretary.

Cosmia Labs. Moved

Cosmia Laboratories has moved to 95 Madison Ave., New York 16, where it has considerably more space and very light pleasant manufacturing quarters. The new telephone number is Murray Hill 3-3233. The company, which is headed by Frank Tamas, was established in 1937 and manufactures private brand cosmetics exclusively, specializing in the products required by the quality market.

Robert H. de Greeff, president of R. W. Greeff & Co. (left) presenting a gold clock to Ira Vandewater, vice president, in celebration of his twenty-fifth anniversary with the Company.

The presentation was made under the picture of R. W. de Greeff who founded the company in 1880.

Later in the evening, Mr. Vandewater was the guest of honor at a cocktail party and dinner at the Pillement Suite in the Waldorf-Astoria attended by all of the employees of R. W. Greeff & Co.

Breck Buys Building

John H. Breck, Inc., manufacturing chemists, has purchased a three-story building in Springfield, Mass. The entire building, located at 115 Dwight St., in the downtown section, will be used for manufacturing purposes, laboratory and offices. The steadily increasing volume of the regular line of the Breck preparations produced for the care of the hair and scalp made this chance for larger quarters advisable.

Dr. Katz Completes Trip

An extensive trip, including both the United States and Mexico, has been completed by Dr. Alexander Katz, executive and chief chemist of the Florasynth Laboratories, Inc. He visited New Orleans, Dallas and made a trip by air to Mexico City and visited the Florasynth Plantation in Papantla, Mexico. He made a study of conditions affecting the production of synthetics and flavorings, and surveyed market conditions of raw materials during the present emergency.

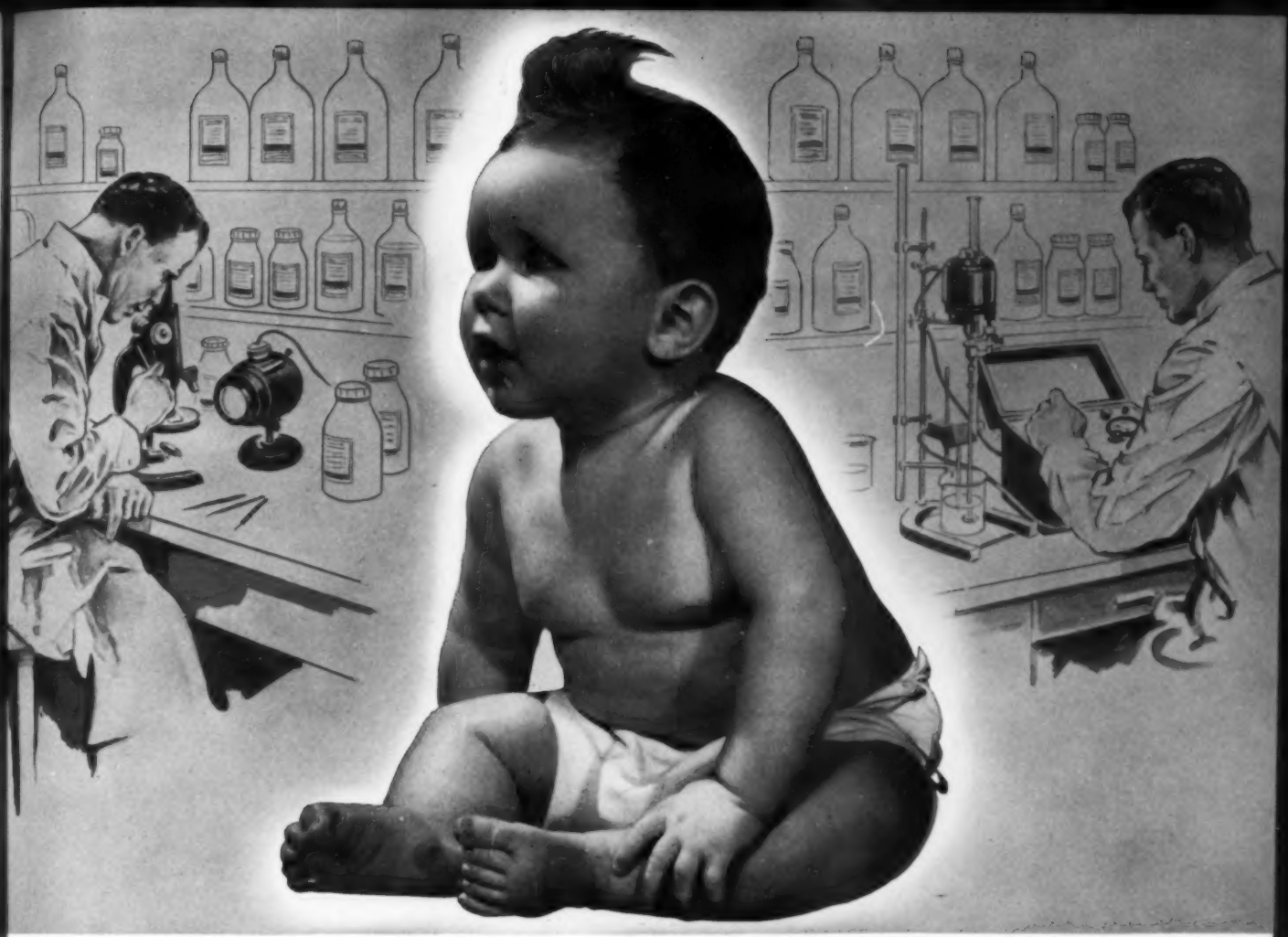
Dr. Katz upon his return discussed war materials and synthetics in a lecture given at Occidental College, Los Angeles, and at the University of Southern California he spoke to the Food Technology class on the importance of flavors in foods. The lecture was illustrated with moving pictures taken on his visit to Papantla, Mexico.

Norwich Percolate

The June issue of the "Norwich Percolate," magazine published by and for the employees of Norwich Pharmacal Co., Norwich, N. Y., was devoted exclusively to a description of the ceremonies at which the company was awarded the Army-Navy "E." Many photographs, taken at the Colonial Theatre, Norwich, May 10, when the "E" was presented also appear.

Babs Moves Offices

Babs Creations, Inc., has moved its executive offices to 550 Fifth Ave., New York 19.



Measured purity to guard him all the way

From his tiny toes to the top of his fuzzy head . . . he is healthy, robust, and very much alive!

He's lucky, this baby . . . luckier than babies born even a generation ago. He's *healthier* because of the advances made by medical science, and the research work of leading pharmaceutical houses.

From pharmaceutical laboratories have come countless products which help to give babies a better start in life, help protect them through childhood and all the way through life.

Many of these products *began with a fine chemical, or several fine chemicals, of exacting purity.*

And the purity of the fine chemical assured the quality and the *success* of the product.

At Baker, it is always *measured purity* in fine chemicals—measured to exacting standards.

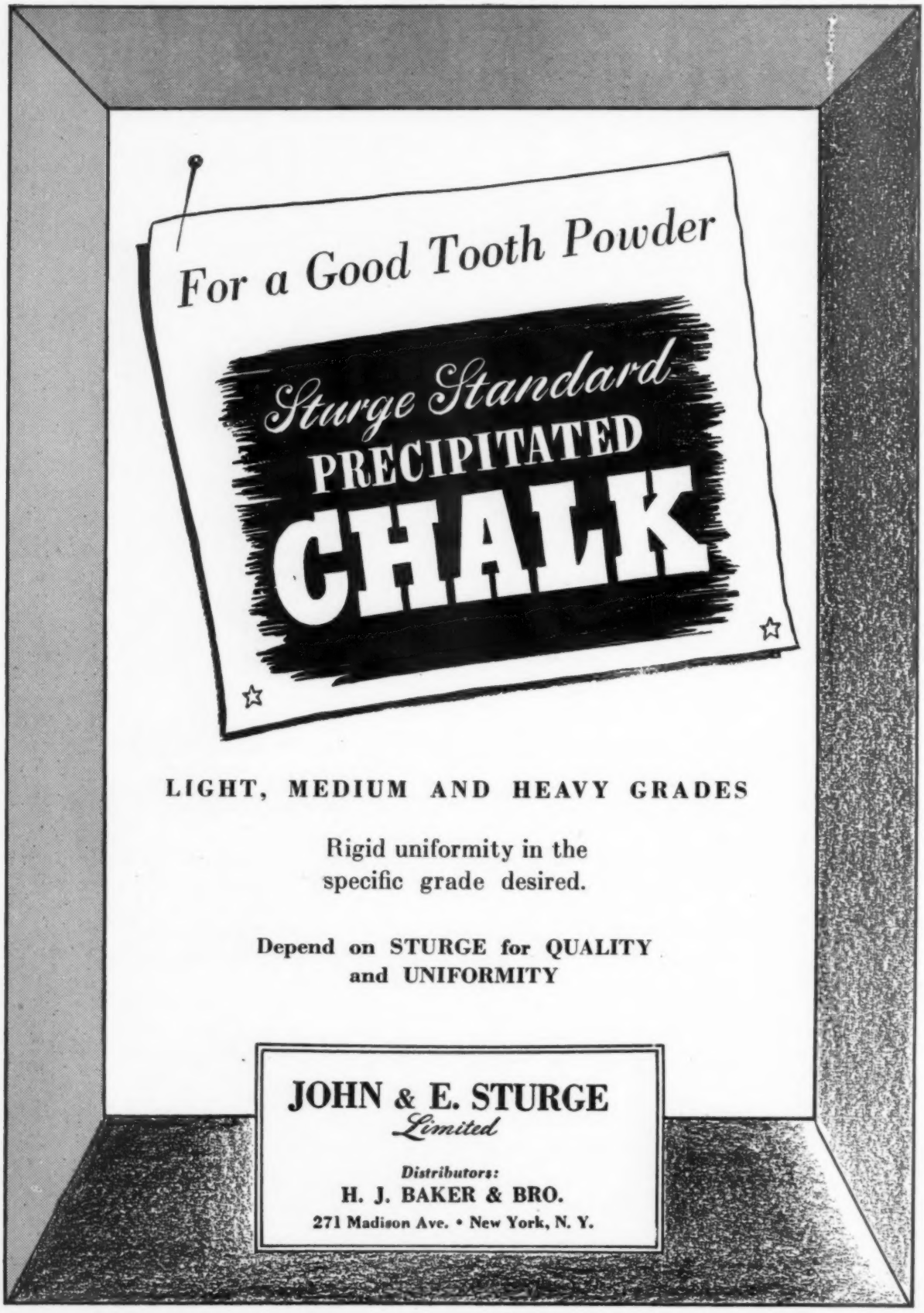
Leading pharmaceutical houses rely upon Baker. They know that Baker's purity by the ton in fine chemicals is the result of unique control methods and ceaseless testing. They know that, at Baker, there is no compromise with quality.

J. T. Baker Chemical Co., *Executive Offices and Plant:* Phillipsburg, N. J.
***Branch Offices:* New York, Philadelphia and Chicago.**

FOR VICTORY BUY UNITED STATES WAR SAVINGS BONDS AND STAMPS

Baker's

Baker's fine chemicals


For a Good Tooth Powder
Sturge Standard
PRECIPITATED
CHALK
LIGHT, MEDIUM AND HEAVY GRADES
Rigid uniformity in the
specific grade desired.
Depend on STURGE for QUALITY
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Abbott Courses

For the past two years Abbott Laboratories, North Chicago, Ill., has been giving courses for its foremen and supervisors. The first course, completed last year, was in Foremanship Training and was conducted by special instructors of the War Training Division of the Illinois Institute of Technology. This course was taken by 50 Abbott department managers who attended classes two nights a week, two and a half hours per night for ten weeks. The next course given was that of Job Instruction Training which was completed by 108 supervisors. Recently courses have been completed in Safety Engineering by 22 foremen and a Job Method Training course being attended by 24 foremen is now in progress; also a class for 70 supervisors in War Time Human Relations. In addition, a meeting is held for all department managers once each month at which time the duties of one department as related to those of other departments of the business are presented.

Classes for foremen are held in the evening in the company auditorium with all instruction free of charge. Enrol'ment is on a voluntary basis. Classes for supervisors and department managers also are held in the company auditorium, but during working hours.

These training programs have been presented by Abbott's Personnel Department of which Paul Heerens is manager.

Amer. Home Buys Milk Company

Alvin G. Brush, chairman of American Home Products Corp., has announced the completion of negotiations to acquire the Bell Center Creamery and Cheese Co. of Ohio and its affiliate, the O.M.S. Corp., a producer of milk sugar. All of the outstanding stock in the two companies is owned by Walter L. Lamb and his family. It will be acquired through the issuance of 6,000 shares of American Home Products stock.

With Tru-Test

Jere Henshaw has joined the newly developed drug and cosmetic division of the Tru-Test Marketing and Merchandising Organization, Merchandise Mart, Chicago, as general manager. Mr. Henshaw was formerly connected with the Elmo Sales Corp. as vice-president in charge of sales. E. C. Hunter has also joined Tru-Test as merchandise manager of the drug and cosmetic division. He resigned from the Katz Drug Co. of Kansas City after fifteen years.

Fritzsching Leaves Rare Chem.

E. T. Fritzsching has resigned as vice-president and general manager of Rare Chemicals, Inc., of which he was one of the organizers. He has joined Interchemical Corp. where he will concern himself with the development and promotion of new products in the fine chemicals field.

E. T. FRITZSCHING

Interchemical Corporation's present products are largely in the field of chemical coatings and related materials. Its subsidiaries include Ault & Wiborg Corp., industrial finishes; Aridye Corp., textile coloring materials; R-B-H Dispersions, Inc., specialized pigment dispersions; and Virginia Chemical Corp., titanium dioxide.

Winthrop Advances Sherndal

Dr. A. E. Sherndal, plant superintendent of Winthrop Chemical Co., has been elected vice-president of the organization, it has been announced by Dr. Theodore G. Klumpp, president. Dr. Sherndal was recently given the honorary degree of Doctor of Science by St. Lawrence University, in recognition of his research in the synthesis and manufacture of atabrine.

American Home Traffic Office

The general traffic office of American Home Products Corp., has been moved from Jersey City, N. J., to 22 East 40 St., New York, according to an announcement made by Alvin G. Brush, chairman of the board. In recent weeks, the principal offices of a number of American Home Products subsidiaries have also been transferred to the 40th Street building.

George O. Griffith, general traffic manager of the corporation, is in charge of this office which has general supervision over the transportation of raw materials and the distribution of more than 5,000 products manufactured and sold by the various subsidiary companies. The department conducts negotiations for the account of the corporation with the various railroads, steamship lines and highway carriers and makes appearances as well before railroad, highway and steamship rate committees and federal and state transportation regulatory bodies.

The traffic work of the corporation is handled through district traffic offices located in Jersey City, N. J.; Philadelphia; Rochester, N. Y.; Mason, Mich.; Cincinnati; Chicago; Atlanta; Los Angeles and San Francisco. The corporation also maintains a district traffic office in Walkerville, Ont., for the account of its Canadian subsidiaries.

National Drug Appoints Daniel

H. M. Daniel has been appointed assistant sales manager of National Drug Co., Philadelphia, succeeding D. S. Carr, who is now serving in the Navy. Mr. Daniel has been a member of the sales staff of the Upjohn Co. for the past fifteen years, serving both in the field and in the home office.

Sayres on Bristol-Myers Board

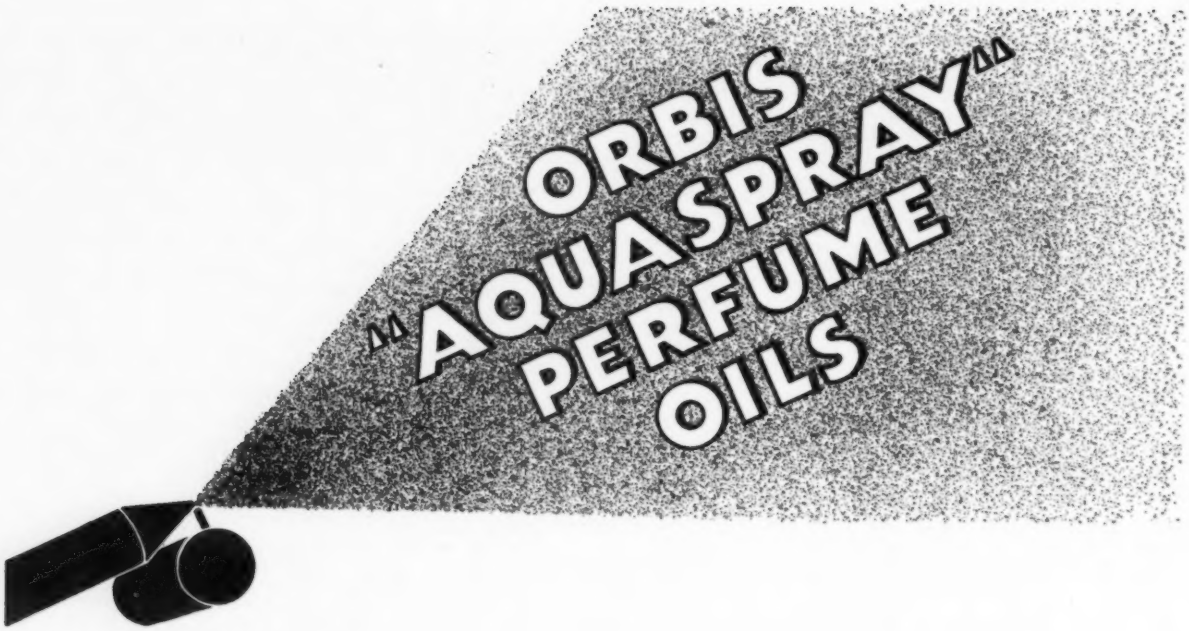
Philip C. Sayres, secretary-treasurer of Bristol-Myers Co., was elected to the board of directors at the annual stockholders meeting held at Wilmington, Del.

PHILIP C. SAYRES

Mr. Sayres joined Bristol-Myers Co. in 1931 as assistant to the president and has served the company as comptroller and assistant treasurer. Prior to his association with Bristol-Myers, he was assistant statistician with Jenks,Gwynne and Company, brokers, and later he served as account supervisor with Scudder, Stevens and Clark, investment counsel.

Wiltsee—College Trustee

Lee Wiltsee, vice president and treasurer of the Wm. S. Merrell Company,



FOR BETTER AQUEOUS DEODORIZING SPRAYS

because they are so scientifically treated that a finished spray in permanent milky emulsion form is obtained by merely mixing 3 ounces of "Aquaspray" and 3 ounces of formaldehyde solution U.S.P., with sufficient water to make 1 gallon. The finished cost is less than 38 cents per gallon.* This is a real profit producer.

Such sprays are unexcelled for deodorizing foul air in homes, institutions, hospitals, theaters, etc. They solve the alcohol shortage problem for manufacture of such products.

★Based on the gallon price of "Aquaspray."

ODORS AVAILABLE

Carnation	Narcisse
Gardenia	New Mown Hay
Honey Aroma	Orange Blossom
Jasmin	Persian Bouquet
Lavender	Pineneedle
Lilac	Rose
Locust Blossom	Syringa
Mint	Violet

Special odors furnished on request.
$2.00 per pint $14.00 per gallon

A request on your letterhead will bring further details and sufficient sample for 1 quart of finished spray.

ORBIS

PRODUCTS CORPORATION

215 PEARL STREET, NEW YORK · FACTORY & LABORATORY, NEWARK, N.J.

CHICAGO
660 North Dearborn St.

PHILADELPHIA
610 Brown Bldg.

BOSTON
89 Broad Street

MEMPHIS, TENN.
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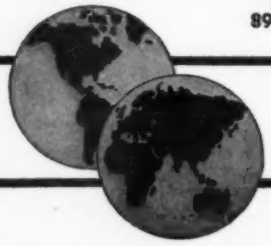
Water Soluble Gums	Waxes	Cosmetic Raw Material	Fruit Flavors
Thymol	Stearic Acid	Oleo Resins	Food Colors
Aromatics	Essential Oils	Perfume Bases	Quince Seed
Rice Starch	Zinc Oxide French	Olive Oil	Irish Moss



was elected a Trustee of the Cincinnati College of Pharmacy for a term of three years at the annual meeting held at the College on June 25th.

People

Illes in Navy

George M. Illes, formerly with the Dallas branch of Florasynth Laboratories, Inc., is now a naval lieutenant stationed at the U.S. Naval Air Station, Jacksonville, Fla., and his brother Robert, who was also with Florasynth in Dallas, is now a first lieutenant, serving as post statistical officer at Cochran Field, Macon, Ga.

Williams Completes Training

Herman J. Williams, Brooklyn and Long Island sales representative for Shulton, Inc., New York, has completed his eight months training period for the Signal Corps of the United States Army and is now at Camp Crowder, Missouri, Although Mr. Williams was inducted into the Army last August, he continued to work with Shulton, taking his training at night.

Lt. Rosett Advanced

Lieut. L. K. Rosett, son of Louis H. Rosett, of Florasynth Laboratories, has been promoted to the rank of wing chemical officer and transferred to the 44th Bombardment Unit at the Army Air Base, El Paso, Tex.

Kallich in Air Corps

Edward Kallich, who was formerly in charge of inter-office activities between New York and Los Angeles for Florasynth Laboratories, and who also performed liaison duties between Florasynth and all government agencies, is now serving in the Air Corps. He is a nephew of Dr. Alexander Katz, chief chemist and executive of the company.

Enid Edson Resigns from Shulton

Enid Edson, designer of Early American Old Spice and Early American Friendship's Garden toiletries, announces her resignation from Shulton, Inc., effective July 1.

Chemical Medal to Grebe

Dr. John J. Grebe, director, physical research laboratory, The Dow Chemical Co., Midland, Mich., has been elected to receive the Chemical Industry Medal for 1943. This award, which may be made annually at the discretion of the medal committee, is for valuable application of chemical research to industry. The medal will be awarded at a meeting of the American Section of the Society of Chemical Industry to be held in New York City in November 1943.

Dr. Grebe was born February 1, 1900, at Uerzig, Rhineland, Germany, and came to America in 1914. He was graduated from Case School of Applied Science in 1924 with the degree of Bachelor of Science in Physics. In 1928 he received the degree of Master of Science and in 1935 he was awarded the honorary degree of Doctor of Science by Case.

Following his graduation, Dr. Grebe became research physicist under the direction of the late Dr. Herbert H. Dow, president of the Dow Chemical Co. Since that time he has built up a research department employing about 140 technical graduates and other scientific workers, which has made contributions of fundamental importance to the fields of applied chemistry and physics.

Dr. Grebe invented the method for the extraction of bromine from sea water resulting in the establishment of a commercial plant at Wilmington, N. C., which has been in successful operation for about ten years. Working in conjunction with Dr. E. O. Barstow and coworkers, he contributed to the commercial process of recovery of magnesium from sea water. His knowledge of electrometric control made practical the Dowell process for treating oil wells with acid. In this process deposits which clog the porous rocks are removed, allowing the oil to flow through the rocks. More recently Dr. Grebe has led the successful development of styrene, Saran, a synthetic plastic, and butadiene monomer and polymer production. His work on styrene has furnished the basis for the production of the major portion of this material for the synthetic rubber program.

Associations

N.W.D.A. Meeting

The annual meeting of the National Wholesale Druggists' Association will be a streamlined wartime convention, held at the Waldorf-Astoria Hotel, New York, from noon, October 5, to noon, October 7.

The convention will open with luncheon in the Grand Ballroom for all members on Tuesday, October 5. The first formal session for all members will follow at 2.30 and will be addressed by the president, George Van Gorder, and other key speakers.

The second general session for all members will be held in the Wedgewood Room, Wednesday morning, October 6. The papers at this session will be supplied by the wholesale druggists. This session will represent the portion of the program heretofore conducted as the executive meeting of wholesalers only. However, this year because of wartime conditions and the many mutual problems all members will be invited to attend. A second joint luncheon is scheduled for the Starlight Roof and will be addressed by a guest speaker.

At 2.30 o'clock Wednesday afternoon the third general session for all members will convene in the Wedgewood Room. The program for this session will be presented by manufacturers under the direction of S. B. Penick, Jr., chairman of the N.W.D.A. Manufacturers' Committee.

Wednesday evening there will be an N.W.D.A. World War II dinner, open to all members and their friends. A stage show and dancing will follow the dinner. J. H. McShane, of Thos. Leeming & Co., chairman of the entertainment committee is making the arrangements and Joseph A. Huisking, of Fritzsche Brothers, will be in immediate charge of reservations for the dinner.

The fourth and final general session will convene in the Ballroom, Thursday morning at 9.30, and it will be followed by the closing luncheon for all members at which there will be a guest speaker.

Drug & Chemical Club Presidency

The Board of Governors of the Drug and Chemical Club, at its June meeting June 22, voted to allow the office of president to remain vacant for the balance of the term out of respect to the memory of its late president, Francis J. McDonough, who died May 31.

Dorland Appointed by DCAT

Victor E. Williams, chairman of the Drug, Chemical and Allied Trades Section of the New York Board of Trade, has appointed Ralph E. Dorland, eastern sales manager of The Dow Chemical Co., as the section's representative on the parent board of directors. Mr. Dorland will fill the vacancy on the board caused by the death of F. J. McDonough. Mr. Dorland was chairman of the section in 1940 and has since served as a member of its advisory council.

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- Salicylates
- Sodium Benzoate U. S. P.
- Sulfanilamide U. S. P.

Controllers Institute Elects

Neville R. Ashcroft, secretary-treasurer of Scott & Bowne, Bloomfield, N. J., and Walter H. Kamp, controller of Bristol-Myers Co., Hillside, N. J., have been elected directors of the New York City Control of the Controllers Institute of America.

Other elections announced by the Controllers Institute are: William Ransom, assistant treasurer and controller of the William S. Merrell Co., a director of the Cincinnati Control; F. W. Peake, secretary-treasurer of George A. Breon & Co., a director of the Kansas City Control; and J. H. Hardy, controller of the Chattanooga Medicine Co., a director of the Chattanooga Control.

Ben F. Evans, Jr., assistant controller of the Zonite Products Corp., New York, has been elected to membership in the Controllers Institute of America.

F.W.D.A. Fall Meeting

The Federal Wholesale Druggists Association will hold a two-day meeting at the Waldorf-Astoria, New York, September 30 and October 1. As it was last year the meeting will be a streamlined "Road Ahead Conference."

BIMS Golf

On Wednesday, June 23, over seventy-five members and guests of the BIMS, using every known mode of transportation, arrived at the Wykagyl Country Club, New Rochelle for the first golf meet of the season.

War bonds in the amount of $250 were awarded to the winners by chairman Martin Schultes who announced that the next and final tournament for 1943 will be held at Garden City Country Club, Tuesday, August 24. The prize winners were as follows: W. K. Sheffield, New England Collapsible Tube Co.; William H. Blanc, McKesson & Robbins; Rudolph Berls, Premo Laboratories; C. R. Keeley, "Beauty Fashion;" Harris Whitaker, Hudnut Sales Co.; Peter L. Forsman, C. H. Forsman Co.; Leonard H. Schultes, Hewitt Soap Co., Inc.; David J. Stewart Jr., Yardley & Co.; Roger Kenna, Marlin Firearms Co.; Paul E. Forsman, C. H. Forsman Co.; Earl Moore, Schlegel Lithographing Co.; James A. Leyden, Hampden Glazed Paper & Card Co.; Emory Wright, United Drug Co.; Paul Miller, International Cellucotton Products; Pierre Harang, Houbigant Sales Corp.; Ross A. White, E. N. Rowell Co.-A. H. Wirz, Inc.; Burton T. Bush, Bush Aromatics, Inc.; Edward A. Bush, Bush Pan America, Inc.; Sewell H. Corkran, E. N. Rowell Co.-A. H. Wirz, Inc.; Frank A. Nicholson, Richardson-Taylor-Globe Corp.; Milton Small, Illustrated Current News; W. Krone, Fritzsche Brothers; O. Dexter Neal, Hilton Davis Chemical Co.; Joseph G. Kelnberger, Scholl Mfg. Co.; Harry Badanes, McKesson & Robbins; Clarence E. Clark, Whittaker, Clark & Daniels, Inc.

Chicago Golf Outing

The Chicago Drug & Chemical Association held a golf tournament at the Itasca Country Club, June 22, at which the low net winners were: Class A—Russ Brown, Roure-Dupont, Inc.; Class B—Al Nelson, Firmenich & Co. Inc.; Class C—Bob Sandke, L. Sonneborn Sons, Inc.; and Class D—Joe Gauer, Fritzsche Brothers. W. N. Wyatt of Westvaco Chlorine Products Co. had the low score in the guest group. A steak dinner followed the golf tournament.

H. A. B. Dunning Foundation

The H. A. B. Dunning Foundation, Inc., has been chartered in Maryland with Dr. H. A. B. Dunning, president of Hynson, Westcott & Dunning, Inc., Baltimore; his wife, Mrs. Ethel Adams Dunning; and their three sons, J. H. Fitzgerald Dunning, H. A. B. Dunning, Jr., and Charles A. Dunning as directors. The foundation will create and manage a fund for the support of philanthropic and other purposes including chemical, medical and pharmaceutical research.

The fund has no capital stock and is empowered to receive contributions for the furtherance of its aims.

Financial

United Drug Refunding

Negotiations for a refunding of $30,000,000 of twenty-five-year 5 per cent debentures of the United Drug Co., due in 1953, are now in their final stages. A registration statement covering a new issue of $20,000,000 of debentures and a new issue of $10,000,000 of preferred stock will be filed with the Securities and Exchange Commission. This will be the company's first public financing since it was formed in 1933 to simplify the corporate structure.

The present debentures were issued originally in the amount of $40,000,000 in 1928 and have had the benefit of a sinking fund of $750,000 annually, beginning in 1934. They are redeemable on any interest date on thirty days' notice, the current redemption price being 103 and accrued interest. The next interest date will be September 15.

The company's only other outstanding security is an issue of 1,351,584 shares of $5 par common stock. Net sales in 1942 were $122,000,000, comparing with $102,460,000 in 1941, both of which were high records. Net income for 1942 was $2,391,230, or $1.70 per common share, comparing with $2,527,424, or $1.87 a share in 1941.

Dow Chemical Dividends

At a meeting of the board of directors of The Dow Chemical Co. held June 30, 1943, dividends as follows were declared, payable August 16 to stockholders of record at the close of business July 31, 1943: On preferred stock, 1¼ per cent; on common stock without par value, 75 cents per share.

Obituaries

J. C. F. O'Dowd

J. C. F. O'Dowd, New York sales representative for S. B. Penick & Co., died June 14 after an illness of three or four months. He was fifty years old.

Mr. O'Dowd had been associated with Penick for the past eight years and previous to that was with J. L. Hopkins & Co.

Ben Greenberg

Ben Greenberg, vice-president of Sterling Magnesia Co., Bronx, N. Y., died June 22 in St. Vincent's Hospital, New York, as a result of injuries suffered in an automobile accident several months ago. He was sixty-three years old.

Mr. Greenberg was the official collector of quinine in Bronx County for the National Quinine Pool. He was a member of the Red Cross Drug Division in the Bronx, the Bronx Board of Trade, the State Pharmaceutical Association, the National Wholesale Drug Association. He was the first president of the Drug Salesmen's Association of Greater New York.

Marie Stebbe

Marie Stebbe, wife of John T. Stebbe, died June 16 at her home in New York, after a protracted illness. Mr. Stebbe, who is vice-president in charge of exports for McKesson & Robbins, was honored on March 1 for his completion of fifty years with the company. Beside Mr. Stebbe, a daughter, Florence survives.

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INDUSTRY'S BOOKS

I Took A War Job, by Josephine von Miklos, 223 pp., Simon and Schuster, New York, $2.

Josephine von Miklos, well known in this industry as photographer and package designer, is the author of "I Took A War Job." The book follows the ups and downs of her factory career and is particularly interesting because the author is somewhat of a pioneer in that she worked in a department where no woman had ever been admitted before. She has an aptitude for drawing crisp characterizations of the factory personnel which adds materially to the interest of her story. While this book should appeal to the many thousands of women now doing similar work—but who may not have the same ability as the author to see and interpret what goes on about them—it should also prove an inspiration to the many other thousands of women who now contemplate entering war plants, and who, like Josephine von Miklos, may soon be doing a full time man's job.

Magic In A Bottle, by Milton Silverman, Ph.D., 332 pp., The Macmillan Co., New York, $2.50.

Many books have been written during the past few years around the romance in drug and chemical research, Man In A Chemical World—This Chemical Age—The Conquest of Bacteria—The Romance of Chemistry, to name a few. But Magic In A Bottle is by far the most interesting and most readable. It is the story of the men behind the chief drugs in modern medicine—the men who went out and worked to find aspirin and tincture of iodine and veronal and Vitamin B_1. Dr. Silverman makes these men real and alive. They are no longer the names we read about or read about today, but actual people—discouraged, elated, disillusioned, or raised to world fame. Behind every bottle in the bathroom cabinet is a story, and here it is.

A Review of Medicine, by members of the faculty Northwestern University Medical School, edited by Benjamin Boshes, M.D., M.S., Ph.D., Assistant professor of Nervous and Mental Diseases, Northwestern University Medical School, Fifth Ed., Revised and Appended, 712 pp., Northwestern University Press, Chicago, $9.50.

The purpose of "The Review of Medicine" is to provide an easily readable record of a correlation course between the teaching in a medical school and actual bedside experience. Hence, many of the theoretical considerations and much of the historical background of a given disease are deleted. However, the basic sciences, like anatomy and physiology, necessary to understand the symptoms and treatments, are emphasized and integrated into the clinical descriptions. It is a compilation of those medical data most useful to the student as he leaves medical school. It helps him prepare for examinations and for problems of interneship and early practice. It has proven of use to the general practitioner because it is brief and entirely "meaty." A comprehensive index and cross index enhance the value of the book to the reader and make it useful both as a quick reference and as a review.

Sanitary Products, Their Manufacture, Testing and Use, by Leonard Schwarcz, 305 pp., MacNair-Dorland Co., New York, $5.

This is a practical handbook dealing with disinfectants, insecticides, liquid and oil soaps, floor waxes, deodorizing blocks, soap dispensers, sprayers, etc. Manufacturing methods are discussed and suggestions offered as to most effective use. Testing, packaging and labeling are also covered. This is the first book to be published in this particular field, and will give the reader a considerable amount of practical information on this important group of chemical specialties.

The Chemical Formulary, Vol. VI, Edited by H. Bennett, 636 pp., Chemical Publishing Co., Brooklyn, $6.

The Chemical Formulary is a collection of practical commercial formulae and recipes for making thousands of products in many fields of industry. Volume 6 contains formulae for military as well as civilian uses. The inclusion of a chapter on substitutes for chemicals, metals, oils, rubber, wax, drugs, dyes, gums and minerals is timely. An index of more than 20 pages, fully cross-referenced adds materially to the usefulness of this volume.

Fundamental Principles of Bacteriology, by A. J. Salle, B.S., M.S., Ph.D., Associate Professor of Bacteriology University of California, Second Ed., 643 pp., Illus., McGraw-Hill Book Co., New York, $4.

This work was originally intended for those who are beginning the study of bacteriology and especially for those who plan to specialize in the subject. Practically all chapters have been revised, with the following showing the most significant changes: The Morphology of Bacteria; The Microscope; The Effect of Environment upon Bacteria; The Nutrition of Bacteria; The Enzymes of Bacteria; The Respiration of Bacteria; The Fermentation of Carbohydrates and Related Compounds; Associations of Bacteria; Differentiation and Classification of Bacteria; Bacteriology of Air; Bacteriology of Soil; Bacterial and Virus Diseases of Plants; and Specific Infections.

Synthetic Adhesives, by Paul I. Smith, 125 pp., Chemical Publishing Co., Brooklyn, $3.

The present volume should be considered as a primer or practical introduction to the subject of synthetic adhesives. The author has aimed at an adequate description of the main types of synthetic adhesives with due emphasis on their peculiar properties and main applications. Contents: Dry Gluefilm, Phenol-Formaldehyde Resin;

Phenol-Formaldehyde Liquid and Solid Glues; Urea-Formaldehyde Glues; Cellulose Adhesives; Polyvinyl Cements; Acrylic Resin Cements; Chlorinated Rubber and Synthetic Rubber Cements; Miscellaneous Adhesives; Uses of Synthetic Adhesives in the Manufacture of Aeronautical Improved Plywood and High-Density Woods; General Applications of Synthetic Adhesives in Industry.

Organic Syntheses, Collective Vol. 2, edited by A. H. Blatt, Secretary to the Board Queens College, Flushing, 654 pp., John Wiley & Sons, Inc., New York, $6.50.

Collective Volume 2 contains in revised form the material which appeared in annual volumes X-XIX of Organic Syntheses. It is a companion to Collective Volume 1 and in its general plan follows the pattern of that volume. In the revision of the material for Collective Volume 2, errors found in the original printings have been corrected; calculations and references have been checked; modifications and improvements in the procedures, which were noted in appendices in the annual volumes, have been incorporated in the text; and eleven new and improved checked procedures have been added. These new procedures are for the preparation of 2-carbethoxycyclopentanone, 1,2-dibromocyclohexane, ethyl adipate, ethyl methylmalonate, ethyl a-naphthoate, 4-nitrophthalimide, nitrosomethylurea (two procedures), pimelic acid (two procedures), and triphenylmethylsodium.

The Chemistry of Large Molecules, edited by R. E. Burk, Director of Research, The Standard Oil Co., Cleveland, and Oliver Grummitt, Morley Chemistry Laboratory, Western Reserve University, Cleveland, 313 pp., Interscience Publishers, Inc., New York, $3.50.

To meet the difficulties involved in keeping abreast of the forward movement of science, Western Reserve University conceived the idea of inviting distinguished scientists in the field of chemistry and closely related fields to be professors for a day. This is Vol. I under the general title of Frontiers in Chemistry and presumably other lectures and volumes will follow. Contents: The Mechanism of Polyreactions—The Investigation of High Polymers with X-Rays, H. Mark, Polytechnic Institute of Brooklyn. The Colloidal Behavior of Organic Macromolecular Materials—The Ultracentrifuge and Its Application to the Study of Organic Macromolecules, Elmer O. Kraemer, Biochemical Research Foundation of the Franklin Institute, Newark, Delaware. Elastic-Viscous Properties of Matter, Arthur Tobolsky, Richard E. Powell and Henry Eyring, Princeton University. The Electrical Properties of High Polymers, Raymond M. Fuoss, General Electric Co., Organic Chemistry of Vinyl Polymers, C. S. Marvel, University of Illinois. Chemistry of Cellulose and Cellulose Derivatives, Emil Ott, Hercules Powder Co.

Manual of Laboratory Glass-Blowing, by R. H. Wright, Associate Professor of Chemistry, University of New Brunswick, 90 pp., Illus., Chemical Publishing Co., Brooklyn, $2.50.

The first two chapters of this book give a short account of the materials, glass and gas, used by the glass-blower. Chapter 3 describes the tools that are required for ordinary work around a physical or chemical laboratory. Chapter four outlines the fundamental operations which form the bases of the concluding chapters. The latter consist of instructions given for the more advanced and some special operations.

Organic Chemistry Simplified, by Rudolph Macy, Ph.D., Chemist, Chemical Warfare Service, Formerly Assistant Professor of Chemistry, University of Maine, 431 pp., Chemical Publishing Co., Inc., Brooklyn, $3.75.

This book contains hundreds of structural formulae and reactions that clear up many hazy ideas. Thus it can be of value to students, teachers and practicing chemists, particularly those who have not been able to keep abreast of recent advances in theory and practice. Contents: Part I—The Unique Position of the Atom in Chemistry. Part II—The Architecture of Carbon Compounds. Part III—The Classification of Carbon Compounds. Part IV—Special Topics in Organic Chemistry.

Company Museums, by Laurence Vail Coleman, Director of The American Association of Museums, 173 pp., Illus., The American Association of Museums, Washington, $2.50.

The purpose of this work is to show the nature and usefulness of company museums. but it may serve also as a guide for people who have museums of this kind to manage. These museums are used for business reference and public relations. They are devoted to the history, past and current, of their parent companies and to technical matters in their lines of business. The appendix of the book describes eighty company museums in the United States and three in Canada.

The Pharmaceutical Recipe Book, Third Ed., 551 pp., by Authority of the American Pharmaceutical Association, Mack Printing Co., Easton, Pa., distributors, $5.

The American Pharmaceutical Association has published the Third Edition of its Pharmaceutical Recipe Book. The new edition represents a complete revision of this useful formulary with a view to the improvement in the appearance, taste and effectiveness of the preparations included and the addition of new formulas gleaned from the medical literature, hospital formularies and foreign compendia. The sections devoted to chiropody formulas, dental preparations, veterinary products and cosmetic preparations have been completely revised by authorities in these fields. New features which have been added include a table of Latin terms and equivalents, a glossary of synonyms, a table of acceptable coal tar dyes, a vitamin synopsis, tables for preparing percentage solutions, a section on preparations for diabetics, and a chapter on opthalmic preparations. The Third Edition of the Recipe Book contains 1400 formulas which should be at the finger tips of every pharmacist interested in rendering the best in professional service.

Glue And Gelatine, by Paul I. Smith, 145 pp., Chemical Publishing Co., Inc., Brooklyn, $3.75.

The greatest importance is now attached to the glue and gelatine industry which, dependent as it is on the by-products of the hide and skin allied trades, supplies so many industries with materials necessary for the production of a wide range of products, from munition waddings and casings, to pharmaceuticals. Contents: Early History, Introduction and Histology of Skin and Fibre Structure of Protein, Introduction to Chemistry and Proteins, The Raw Material for Glue and Gelatin, Preliminary Processes, Extraction of Gelatin from Glue Stock, Filtration, Clarification and Addition of Chemicals, Evaporation, Recovery and Purification of Bone Fat and Skin Greases, Properties and Qualities of Glue and Gelatin, Plastics for Gelatin Plant Construction, Glue as an Adhesive and Miscellaneous Applications, Gelatin for the Photographic Industry, Gelatine in the Foodstuff Industry, Miscellaneous Applications of Gelatine.

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U.S.I. CHEMICAL NEWS

July ★ A Monthly Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1943

Vitamin B_6 Synthesis Requires the Use of Ethyl Acetone-Oxalate

Production of Pyridoxin Aided by U.S.I. Compound

A new synthesis of Vitamin B_6 (pyridoxin) that has just been published requires the use of ethyl acetone-oxalate (ethyl acetyl-pyruvate — $CH_3COCH_2COCOOC_2H_5$), a compound which offers many interesting possibilities for experimental work.

The ammonium derivative is first prepared according to the method of Mumm and Bergell [*Berichte* 45, 3041 (1912)] and this is then combined with cyanoacetamide according to the method of Bardhan (Journal of the Chemical Society, page 2227 (1929)) to give ethyl 2-methyl-5-cyano-6-hydroxy-pyridine-4-carboxylate. Ammonia in methanol gives the amide which is reacted with phosphorus oxychloride to give 2-methyl-4, 5-dicyano-6-hydroxy-pyridine. By means of nitric acid, the 3-nitro derivative is obtained which is reacted with phosphorus pentachloride to give 2-methyl-3-nitro-4, 5-dicyano-6-chloro-pyridine. Hydrogen reduction converts the 3-nitro compound to the 3-amino from which is obtained, by reacting hydrochloric acid in methanol, 2-methyl-3-amino-4,5-diaminomethyl-pyridine-trihydrochloride. Sodium nitrite with hydrochloric acid gives the hydrochloride of Vitamin B_6.

Sample quantities of ethyl sodium acetone-oxalate may be obtained by writing U.S.I.

Emulsifying, Foaming Agents Produced from Soybean Oil

A new method for producing emulsifying and foaming agents, together with phosphatides, from soybean oil was described in a recent patent.

The inventor suggests that compounds containing phosphorous be removed from the soybean oil by passage through an absorbent such as silica gel. The absorbent may then be (a) extracted with acetone and evaporated, the sterols removed, and the residual oil again passed through the absorbent, or (b) the absorbent extracted with acetone and then with diethyl ether, giving a good grade of phosphatide. The residue is next extracted with 99-99.5% ethanol, giving a sterol glucoside, and the remainder extracted with 20-70% ethanol to produce a foaming agent soluble in dilute aqueous alkali and precipitated by aqueous hydrochloric acid or aqueous sulfuric acid. Phosphatide-rich material (an oil-free viscous liquid soluble in diethyl ether, ethanol and acetone and insoluble in water-ethanol) is obtained from this last step by evaporating the water-ethanol extract to quarter bulk and skimming off the floating gum.

Ethyl Chloride Recovery

According to a new method recently patented, ethyl chloride can be recovered from the eutectic mixture of ethyl chloride-butane obtained in the manufacture of tetraethyl lead upon treatment under pressure at —10° to 30° with an aqueous solution of an alcohol such as 70% ethanol.

Ethyl Formate Used in Synthesis Of Sulfadiazine and Thiamin

Highly Reactive Ester Produced by U.S.I. Employed In Condensation Step of Two War-Important Products

Ethyl formate, a very reactive ester which heretofore has been used chiefly in the production of fumigants, is now being employed in substantial quantities for the synthesis of thiamin (Vitamin B_1) and sulfadiazine, one of the newer sulfa drugs. Both of these products, now filling vital war needs, will undoubtedly play an increasingly important part in the advancement of peacetime medicine.

The extensive use of thiamin in supplying certain body deficiencies is well known and its importance is becoming more apparent each day. It is, for example, an ingredient of the concentrated chocolate bars issued to soldiers as part of their emergency rations.

Sulfadiazine, while exhibiting the same bacteria-killing action of the other sulfa drugs, has been found to cause less reaction than some of the others. Tablets of sulfadiazine are included in soldiers' first aid packets.

Synthesis Is Similar

The synthesis of thiamin and sulfadiazine follows a similar pattern. In the synthesis of the pyrimidine part of thiamin, ethyl formate is condensed with ethyl beta-ethoxy propionate. This is a typical Claisen condensation with sodium which gives ethyl beta-ethoxy sodium formylpropionate. This product on condensation with acetamidine hydrochloride, yields 2-methyl-4-hydroxy-5-ethoxy-methyl-pyrimidine. The hydroxyl group in the 4- position is converted to the chloride by phosphorus oxychloride, and finally into the amino group by ammonia in alcohol. After replacement of the ethoxy group with bromine by action of hydrobromic acid, the pyrimidine part is condensed with the thiazole part to give thiamin.

The synthesis of sulfadiazine actually requires another U.S.I. product, ethyl acetate, as well as ethyl formate. The first step here again involves a Claisen condensation. The ethyl formate is condensed with ethyl acetate in the presence of sodium ethoxide to produce ethyl sodium formylacetate. The remainder of this synthesis consists of condensing the ethyl sodium formylacetate with guanidine to the hydroxypyrimidine, which is then treated with phosphorus oxychloride and hydrogen in order to substitute hydrogen for the hydroxyl group. In the last step, the pyrimidine is

(*Continued on next page*)

Reducing Compounds Detected Rapidly with Spot Tests

A test for the rapid detection of reducing compounds which can be carried out with small amounts of material in the form of spot reactions was described in a recent issue of "The Chemist Analyst."

The following procedure is recommended: place one drop of the solution, or several granules of the solid substance, in one of the cavities of a spot plate and add one drop of an approximately 5% solution of phosphomolybdic acid in water or ethanol. In the case of difficult soluble compounds, a drop of dilute sulfuric acid can be added if necessary. In the presence of reducing compounds there is formed, in proportion to their amount, a blue or green coloration. A blank test is required only when very small amounts of the reducing substance are present.

New Process Patented for Paper, Cloth Coating Material

EAST ORANGE, N. J.— A patent has been awarded to an inventor here for a method of preparing paper and cloth coating materials from cashew nut shell liquid said to produce resistant, infusible and insoluble films. A suggested use is for coating paper to be used as liners for the caps and covers of containers for food, cosmetics and paints.

A typical coating is prepared by heating together about three parts by weight of cashew nut shell liquid and one part of hexamethylene tetramine to about 250° F. After holding at that temperature for about thirty minutes, two parts of a fifty per cent solution of an organic solvent soluble urea-formaldehyde resin in equal parts of butanol and xylol, and four parts of a petroleum spirits are added.

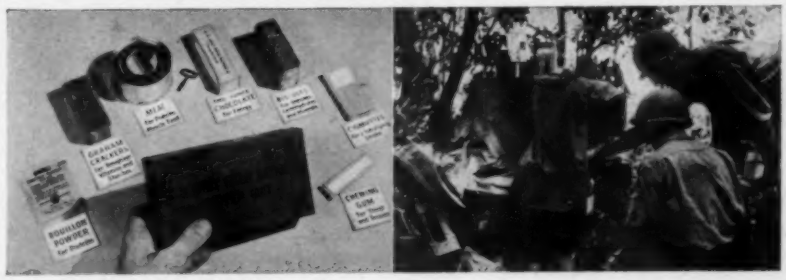

Photo by U. S. Army Signal Corps

Thiamin and sulfadiazine, which are being synthesized with U.S.I.'s ethyl formate, guard the health of soldiers at the front. Shown at left are emergency field rations for the Army, included among which is a concentrated chocolate bar (Ration D) containing thiamin. At right is a front line first aid station where sulfadiazine is administered to prevent infection.

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July ★ **U.S.I. CHEMICAL NEWS** ★ 1943

Ethyl Formate Uses

(Continued from preceding page)

combined with sulfanilyl chloride to give 2-sulfanilamido-pyridine (sulfadiazine).

These uses of ethyl formate again show the diversified applications for such organic chemicals, and the typical reactions in which they are used. The impetus of war needs is resulting in many new synthetic chemicals, especially for medicinal purposes. As illustrated here, the Claisen condensation reaction is extremely important in many of these syntheses. U.S.I. has had years of experience with this reaction in the production of ethyl acetoacetate and ethyl sodium oxalacetate. This company is undertaking the development of other chemicals for similar syntheses which will undoubtedly find a role in the manufacture of hormones, amino acids, vitamins, insecticides and new chemo-therapeutics. U.S.I.'s technical staff will collaborate with any organization whose products call for intermediates obtained by the Claisen type reaction.

Describe Method for Making Air-Drying Ink Vehicle

DOVER, Del. — A patent has been awarded to a company here for a non-oily air-drying vehicle to be used in the formulation of vitrifiable inks that is claimed to offer many advantages over oil vehicles.

The following mixture is recommended:

	Parts
Copaiba resin	32
Venice turpentine	16
Molasses	4
Dammar (crystal dammar varnish)	4
Dibutyl phthalate	1/32

The vehicle is prepared by mixing together and stirring slowly the copaiba resin, Venice turpentine and dibutyl phthalate. To this mixture is added the molasses and dammar. The powdered solids are then added and mixed to produce a finished ink or color.

New Formula Devised For Topical Anesthetic

The following formula has been suggested for a topical anesthetic:

Benzocaine	7.5
Oil of peppermint	6.0
Phenol crystals	3.5
Ethylene glycol, q.s.	50.0

The inventor suggests that the benzocaine, oil of peppermint and phenol crystals be mixed in a flask and heated until the benzocaine dissolves, and sufficient ethylene glycol be added to make 50 cc.

Butanol, Glycerine Mixture Declared Best Soap Solvent

A mixture of 56% of glycerine and 44% of butanol was found to be the most effective solvent for soap, following recent tests in which the solubility of sodium stearate was determined at 25° C. in various mixtures of ethylene glycol with different monohydric alcohols; of butanol with different glycols and glycerine; of chloroform with glycols, and of acetone with ethylene glycol.

It was discovered that for the same glycol, the percentage of different alcohols required to produce maximum solubility is between 40 and 45, except for methanol which was 60%. For a single solvent or mixture to be a good soap solvent, the experimenters say it must have two adjacent hydroxy groups and a hydrocarbon-dissolving portion.

Purification Advised for Use Of Fibrous Sodium Pectate

Recently developed as a substitute for agar in bacteriological gels, fibrous sodium pectate is claimed to be more satisfactory for such use when purified. To achieve purification, it is suggested that the material be suspended in 60% ethanol and pH adjusted to 7.5. The pectate is then filtered and dried in a vacuum at 60° C.

Transparent Sheet Materials Made With Aid of Acetone

A new method has been patented for the manufacture of transparent or translucent sheet materials. An open-work fabric — wire netting, woven-wire fabric, knitted or leno fabric of organic derivatives of cellulose — is wetted with a mobile, volatile liquid such as acetone. It is then treated with a dope compatible with acetone and containing a lacquer base. The solvent is removed by evaporation and the product calendered.

Chloroformic Esters Used To Treat Cellulosic Fabrics

A process for permanently imparting water repellency to cellulosic fabrics was recently patented which comprises reacting a chloroformic ester of ten carbon atoms or more with hexamethylenetetramine directly on the fabric in the presence of heat and an inert solvent. A number of chloroformic esters have been produced by U.S.I.

TECHNICAL DEVELOPMENTS

Further information on these items may be obtained by writing to U.S.I.

An organic alkyl peroxide is offered for use as a catalytic agent in one or two phase polymerizations, as an oxidation agent for laboratory use, as a drying accelerator, and as a bleaching agent. Described as comparatively stable, it is standardized at concentration of 50 to 60% with more than 10% available oxygen. **(No. 710)**

U S I

A grinding, mixing or compounding mill has been developed for relatively small or moderate size batches of wet or dry material. **(No. 711)**

U S I

A photoelectric gloss meter has been developed for measuring the reflecting ability of a finished surface in terms of per cent of an arbitrary standard such as a mirror. It consists of a galvanometer with connection switches and adjusting controls and a photoelectric search unit. **(No. 712)**

U S I

Deodorant oils are offered which the maker says can be readily mixed with formaldehyde and water in proved proportions. It is claimed that deodorants so made will kill all tobacco, cooking, theatre and tavern odors. **(No. 713)**

U S I

A line of paints for machinery and building interiors is offered that can be applied by brush or spray on wood, brick, plaster and metal surfaces. Included are a mill white flat, a mill white gloss enamel, commercial interior gloss and semi-gloss enamel, commercial interior flat, dado enamel, machine enamel, a primer, an undercoat and a thinner. **(No. 714)**

U S I

Direct current resistance decades have been developed with ranges of 0.9 to 999,999 ohms total and accuracy of plus or minus 1% and 0.1% respectively. Switches are described as having self-cleaning, multi-bladed phosphor bronze spring wipers. **(No. 715)**

U S I

Tempered glass tubing is offered which is said to be suitable for handling all types of corrosive fluids except hydrofluoric acid and strong, hot caustic soda solution. **(No. 716)**

U S I

A strainer for handling highly viscous liquids or liquids that are solid at room temperatures has been announced. Maximum operating pressure is 50 psi at temperature of 600°F. The bottom and sides are completely enclosed in a steam jacket suitable for 125 pounds pressure. **(No. 717)**

U S I

Two water and stain-repellent materials are available to treat clothes by dipping after washing or dry cleaning. One is an emulsion that is diluted with water, the other a solvent type. **(No. 718)**

U S I

Skin-protecting creams are offered which are described as non-clogging, non-toxic, and non-irritating. One is recommended for protection against skin absorption of paints, lacquers, tars, resins, glues, graphite and other materials. The second is insoluble in cutting oils or soluble oil emulsions. It is said to afford protection against strong or dilute acids and alkalis, metallic salts, dyes and coal tar distillates. **(No. 719)**

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Curbay Binders
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Ethylene Glycol
Indalone
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Vacatone

The War On Cancer, by Edward Podolsky, M.D., Staff Member, Fifth Ave., and Flower Hospitals, New York, 179 pp., Reinhold Publishing Corp., New York, $1.75.

Deaths from cancer are on the increase. To reduce them, everyone needs to know certain basic facts about this disease. How to recognize the warning signs of cancer, what the causes of cancer are thought to be, and what steps to take when indications point to the possible existence of cancer in some part of the body. The answers to these questions are contained in this informative book. It also deals with the history of cancer and developments in research which it is hoped will some day conquer this disease.

Flying Men And Medicine, The Effects of Flying Upon The Human Body, by E. Osmun Barr, M.D., 254 pp., Funk & Wagnalls Co., New York, $2.50.

This book has been written especially for the prospective flier. Its aim is to present, in non-technical language, those medical aspects of aviation which determine whether the individual is suited, physically and mentally, to undertake the exacting training which the profession of flying requires, how he can prepare himself for examination, and how to maintain his efficiency after he has qualified as an aviator. During the Great War the author earned his wings as a pilot and served as flying instructor. Now a successful surgeon, he has always retained an active and enthusiastic interest in aviation, and he is therefore exceptionally well qualified by professional training and experience, to write a book such as this. This book should meet the long needed demand for enlightenment on this subject in a style which is intelligible to the layman.

Introduction To Organic and Biological Chemistry, by L. Earle Arnow, Ph.D., M.D., Director of Biochemical Research, Medical-Research Division, Sharp & Dohme, Inc., and Henry C. Reitz, Ph.D., Assistant Chemist in the Western Regional Research Laboratory, United States Department of Agriculture, Illus., 736 pp., C. V. Mosby Co., St. Louis, $4.25.

This is probably the first concise volume covering both organic chemistry and biochemistry. Part I is a review of chemical fundamentals. Part II deals with the subject matter of organic chemistry. Uses of organic compounds are stressed, and, in addition, the interrelationships of organic chemistry with the manufacture of many products with which the student is familiar are considered. Such topics of timely interest as synthetic rubber, plastic materials, explosives and new textile fibers are discussed in connection with the organic compounds to which they are related. Part III is a summary of the more important phases of metabolism and nutrition. The digestion, intermediary metabolism, and excretion of each of the major types of biological compounds (carbohydrates, lipids, proteins) have been treated as a unit; that is the authors have followed a chemical, rather than the more usual physiological or anatomical, outline in preparing this section.

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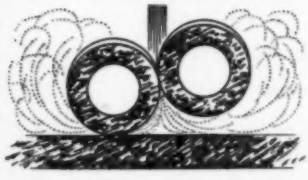

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PRODUCTION FORUM

By FRANCIS CHILSON
Production Engineer

MORALE

Simple little word, isn't it? You hear it incessantly; you believe in it and—like the rest of us—you do very little about it. There's an old saying that perfection is made up of little things. So is morale. Speaking from experience I can testify that wherever morale has been good in an organization my work has been exceptionally good. Whenever it has been bad I have to argue and plead and persuade in order to get anything done and even then the job lacks the mechanical perfection which is so dear to my soul. When morale is good the boys catch up the job and run with it far beyond your most sanguine expectations; when it is bad and you are obliged to make improvements almost by force. Usually improvements in working conditions and in production will improve morale because all men like to see things done well and in spite of themselves will admire a workmanlike performance, but morale is influenced not from below but from above only.

I have been in a few plants where morale was bad. I think I know some of the causes. Here are a few: the top management is snobbish, frozen-faced and remote; they think of their work-people with as much interest and humanity as they think of their machines. They may have and often do have employee welfare and recreational organizations but these are handled as concessions to modern industrial practice and not because such employers really want to establish by means of these organizations a feeling of friendly interest. Workers hate condecension; they're not dogs to be made happy by throwing them a bone. Another reason for lousy morale is favoritism. The Big Boss may be addicted to the old school tie. He may be a social climber anxious to curry favor by employing the sons of those to whom he feels socially inferior. He may still be collegiate to the extent of employing a lot of nin-compoops just because they were spawned by his alma mater.

And relatives, damn the relatives! They are often the bedrock of favoritism and the burr under the blanket. You can't fight relatives, blood's thicker than water. The boss's son will come in for a fat job of course although he may be a fatheaded horizizaz. And the boss's nephews and cousins, Godamen!

Another reason for lousy morale is indecision. The top management never seems to know whatinell it wants or when and it is continually changing its plans. Intellectual dishonesty is another cause of bad morale. When something goes wrong management looks for a goat. It welches. Tightfistedness is another reason for sick morale. Some managements apparently operate on the theory of never giving a good man a raise until somebody else wants to hire him. Still another reason for scummy morale is bossiness. The boss is the BOSS! "By God I own this business and nobody around here is going to do anything unless I approve it!" And of course nobody ever does.

Internal politics often is the cause of corroded morale. Executives war against each other in order to curry favor with Mr. Big. The yesmen are vermin.

A frequently encountered morale buster is credit snatching. Management and its minions claim credit for all things done well and pass the buck for all things done poorly. Authorship for new ideas is appropriated without so much as the quiver of an eyelash. Conversely you'll find the type of management which turns a cold and fishy eye on all suggestions for improvement. If the suggestions are a little unusual they are not merely rejected but their authors are looked upon with distrust as Bolsheviks. I could give you the name of some

In wartime medical science fights . . . to mend bodies and minds broken by war . . . to control the diseases that are more prevalent in war.

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prominent companies in which morale is lousy due to one or all of the above causes. Housecleaning and modernization all the way through from top to bottom is the only sure way of curing bad morale. Vivid, enthusiastic, intelligent management supplemented by fairness, friendliness and sympathy is the antidote for bad morale. But so long as company officials are willing to pay for prejudices, just so long will bad morale continue as a factor in business.

PLANT LOCATION

One of the hopeful signs of the times is that so many firms are considering the construction of new plants after the war. They have found that under the stresses of forced draft production the old plants proved inadequate and the investigation of these inadequacies revealed that the plant site, building types and equipment were far from efficient. The selection of a site is usually done by the president of the firm and the job is done with as much forethought as he would give to the purchase of a pair of shoes. Usually some director has a piece of land he'd like to unload on the company, or the president knows a real estate man. I've known new plants to be built in a town under the most unfavorable conditions simply because Mr. Big lived there and liked the town. The thing you must remember—if Mr. Big should have common sense enough to let you pick the site—is that your plant site and the type of build ngs you build determine forever your basic over-! ea·l costs. Recently I was commissioned by a food manufacturer to select a new site. So I made a check list of the factors that would influence overhead and operating costs. From this list you can make one of your own.

SHIPPING EXPENSE: If freight is paid on both incoming materials and outgoing finished products what is the total amount of inbound freight charges as compared with the total amount of outbound freight charges? In the drug and cosmetic industry finished products command a high freight classification in view of which the freight expense comparison will usually show that it pays to be located near the major market. If you are doing a national business you can't of course be near all your markets. You must select your major market and locate near that. You should consider of course whether present major markets will always continue to be major markets. The existence of a major market at a particular date does not guarantee that that market will always dominate. There are several products in the drug field which once commanded national distribution which now are sold almost entirely in the export field.

In connection with shipping expense do you need a railroad siding? If you can get a site with a railroad siding or the possibility of getting one when actually needed you should by all means consider this an important factor. Trucking charges to freight terminals mount up to beat hell in the course of a fifty-year period. A water front site where you can get railroad sidings, barge and lighterage service is ideal. You may not now need these services and if you can get them at no extra cost by all means seize the opportunity. All the Hudson River there are many water front sites directly adjacent to main line railroads on both sides of the river. The same is true of the Delaware; the Monongehela, the Mississippi and of innumerable bays and harbors on all coasts. Another factor in limiting freight expense is accessibility to good roads and cross country truck lines. Also you should give serious consideration to accessibility to airports.

LABOR. Your new plant site should be located in an area where plenty of high grade male and female labor is assured. The history of the area should show no serious union difficulties. Because of union racketeers some towns are seething with unrest almost continually. What are local labor rates?

TRANSPORTATION. Do trains, busses and trolley cars approach within reasonable distance of the site? Not all your workers will be car owners.

LIVING CONDITIONS: Does the adjacent town provide plenty of good, attractive housing? Are there facilities for outdoor amusement: ball parks, swimming facilities, golf courses, tennis courts, hunting, fishing, etc.? Are there good hospitals in the town, good schools, good libraries, churches?

ATMOSPHERIC CONDITIONS. What is the average mean temperature for the area? (The local weather bureau will have all this data.) What does the humidity table show? If your plant requires a lot of air conditioning or dehumidifying equipment, humidity is an important factor.

POWER & FUEL. How far will you have to haul fuel or oil? Is natural gas available? What are the local sources of power and has the area access to high tension lines from hydroelectric sources?

WATER & SEWERAGE. Has the site unlimited water supplies from city mains, ponds, wells, streams? Wells are especially important for drug and chemical makers who operate a lot of condensers and air conditioning equipment. If the site possesses no wells the local water company or the state will furnish a geologic data showing at what depth cold water will be found and what type it is likely to be. The chemical characteristics of the local water supply are important. In some areas the water contains so many minerals that preliminary treatment is essential for every purpose. Although small, treatment is an added expense.

What about sewage disposal? If the plant is to be in an urban area are sewer facilities adequate and will the type of effluents discharged from your plant interfere with treatment operations at the local sewage treatment plant? If the plant is to be located in the country will you be able to discharge sewage and industrial wastes into the adjacent river if any? If cess pools are required what is the character of the local soil? If it runs to clay and hardpan you will have a hell of a time.

TAXES. What is the local and state tax record for the past twenty years? Increasing? What is the record

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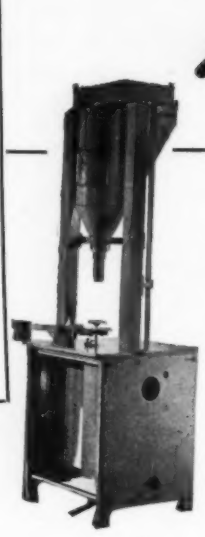

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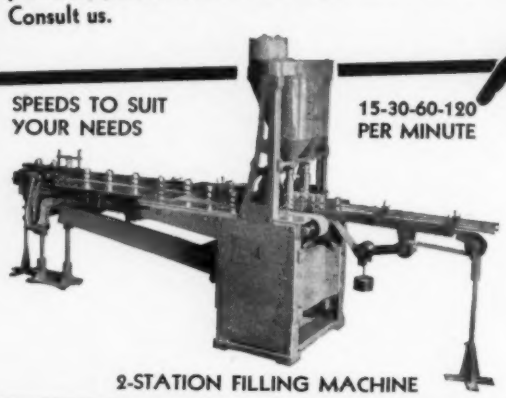

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The Wahlert carboy drainer is built on scientific lines, designed to prevent accidents caused by splashing and carelessness in pouring into smaller containers.

Uninterrupted flow of liquid is assured by the Air Vent which eliminates pumping or syphoning. This vent and the inverted spout are made of hard, acid-proof rubber which will stand considerable abuse and the cup is made of soft rubber which allows the drainer to be attached to carboys with slight differences in size of neck. All parts are replaceable.

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of the state as compared with other states? Does the state have an income tax? Can you get any tax concessions?

LAND COST. What is the cost of the land? Is it likely to increase in value through development of the contiguous territory as residential area or is it likely to decline?

POLITICAL CONDITIONS. What is the history of the local dominant political group? Are political conditions stabilized? Are the local politicians a bunch of shake-down artists?

NEIGHBORS. What kind of industrial neighbors will you have? Can you persuade the local politicos to zone the area of the new plant against undesirable industrial neighbors such as steel mills, slaughter houses, junk yards, dumps? Your neighbors influence your insurance rates. Locations near manufacturers of explosives and inflammables will increase your rates. What is the local fire record? What facilities for fire prevention and control?

REFUSE. How far will you have to haul refuse to the local dump? Is an incinerator available? Are there any local objections to your own incinerator? Will you be required to build exceptionally high stacks to vent odors, fumes and gasses? Will you be required to install smoke treating equipment?

WARTIME MAINTENANCE

To my good friend Ted Weckesser, chief engineer of C. E. Jamieson & Co. of Detroit, I am indebted for the following interesting discussion of the manner in which Ted and his associates anticipated plant maintenance problems and prepared for all manner of substitutions. What Ted has to say applies to all plants large and small because Jamieson makes all manner of drugs and cosmetics in large and small runs. Says Ted:—

First, we made a study of the vital points in our plant where a breakdown would seriously handicap us, and as a result, we decided to obtain certain materials before they became critical. These materials included such things as extra tubes for our boilers, elevator cables, spare parts for our heating plant: we set out a number of motors and had them rebuilt in readiness to replace motors on certain critical machinery in our plant. In some instances, we swapped motors with special speed or horsepower which we did not need, for motors which we knew we would certainly need. From some old equipment, we salvaged certain critical material and parts before giving it to the scrap drive. We have since been very grateful that such steps were taken.

We next looked into the matter of substitutes. Substitutes for metal and other maintenance materials, substitutes for machines, and even substitutes for maintenance itself.

In the matter of substitutes for maintenance materials, we found it advantageous in some instances to go back ten or fifteen years in our way of thinking about our work.

Due to the advancement in the art of welding making it so easy to build benches, conveyors, etc., out of steel, we had definitely gotten away from wooden construction. When, however, it became almost impossible to get structural steel shapes out of stock in Detroit, we decided that steel construction was out for the duration as far as we were concerned. We soon found out that we could get along without angle iron, and were able to build conveyors, supply racks and machine bases out of standard lumber. We do not have any carpenters or cabinet makers in our plant, neither do we have any special woodworking equipment. All we have is a Sears & Roebuck power saw. We learned that in order to retain rigidity in wood construction, nails alone would not suffice. Wooden construction must be properly braced and held together at points of strain with wood screws. It should also be painted immediately after completion and repainted at least once a year to preserve the wood.

As a substitute for sheet metal, we began using plywood. From this we built supply hoppers, trays, bins and lockers. We even obtained some measure of chemical resistance by treating the inside of the plywood hoppers with synthetic varnishes. For bins and hoppers we used mostly ⅜" plywood because of its strength and also because it was possible to join the pieces at right angles and other angles by nailing through one piece and into the edge of the other piece. However, since the first of the year, it is almost impossible to get plywood around Detroit, even on a high priority, but we now have a substitute for plywood in the form of asphalt panelboard made up of laminated roofing paper and available in ¼, 3/16 and ⅛" thicknesses. Construction has to be somewhat altered because it is not possible to nail into the edge of this material and also it is a little more difficult to paint, but with the use of a sealer, bleeding of the asphalt through the paint can be prevented.

Another substitute for plywood is Careystone flat sheathing and Careystone wall board made up of asbestos and cement. Both of these boards are available without priority.

Early in the War, we had to find a substitute for bakelite to use in the making of tablet counting trays. We found that tempered masonite served very well for this purpose. We also learned that a company in Cleveland could furnish a masonite-like substance, smooth on both sides. We obtained some ⅛" material and made a number of counting boards from it. Then we tried to obtain some ¼" material from them and they advised that they would have to supply two ⅛" sheets cemented together. We obtained some of these cemented sheets from them and made them into counting boards for large tablets and found that they worked very well. In the event that it becomes necessary to find a substitute for masonite for the purpose of tablet counting boards, we believe that the Careystone flat sheathing or the Careystone wall board could be used. However, we do not think it would stand too rough a treatment.

This fellow has to be thought about

He is learning co-ordination. He's ambitious to start places and do things. There's a father and mother who would steer him right and 130 million other Americans who wish him well. It is the most important part of our job to make this world a safer and better place for him.

We may not get what we want today with priorities, rationing, high taxes, etc., but what of it? Others sacrificed for us that we might have the comforts and the good we have enjoyed. Now it's our turn to sacrifice for this fellow at the top of the page and his prototypes.

To keep your machinery effectively running on the home front is essential to both a war and peace economy. We can serve our customers now in repair work and with such machines as are needed in vital industries.

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● APPLICATIONS. *Drugs:* stable emulsions, as mineral oil or agar; to grind and disperse magnesium hydroxide for milk of magnesia; grind glands, chick embryos and tissue for serums and vaccines; grind and smooth salves and ointments; produce colloidal bismuth.

● *Cosmetics:* to grind lipstick; emulsify oils and base for creams; homogenize hand lotions; grind and smooth creams and ointments; impart high gloss to creams.

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Another interesting substitute is one designed to take the place of rubber mats. It is made of the same materials which compose roofing paper. It is corrugated to give better cushioning effect. Such mats can be very advantageously used around machines and tables on concrete floors to lessen fatigue.

The matter of punches and dies for our tablet machines has been largely a matter of "patch and pray." Before the War, the only salvaging we considered possible on tablet machine punches was that of recupping standard punches. We have since learned that it is possible to repair cracked or chipped punches by welding with tool steel and then refinishing either by machine or with a hand grinder. We have even welded and reused special punches that have broken off near the base of the punch. This has been done in one of several different ways. First, was to accurately line up the punch by fitting the broken pieces together, clamping it in a vise, protecting the working end of the punch up to the point where it enters the die from the arc splatter; spot the punch together at about four points around its circumference, then removing it from the vise and completing the weld. Later, a more satisfactory method was tried; it was that of chucking the working end of the punch in our lathe and putting the center of the lathe in the base of the punch after matching up the break. We then proceeded to weld as before.

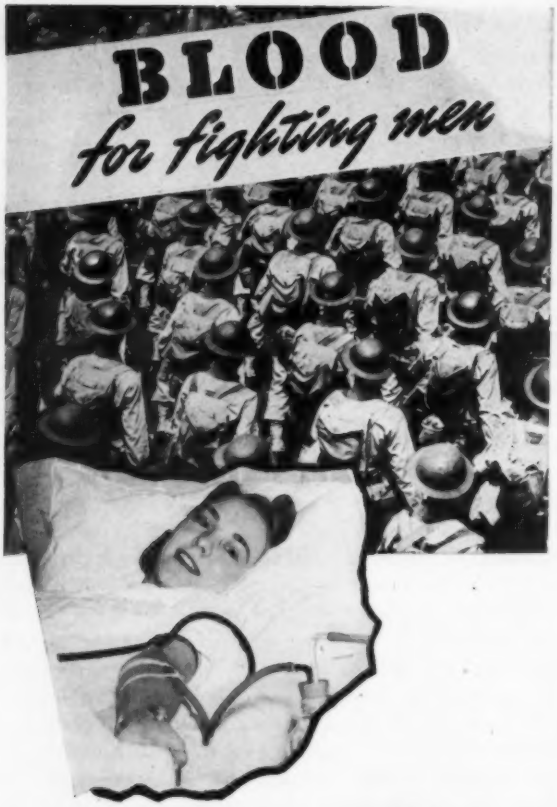
We have, for many years, repaired broken cast-iron machine parts by brazing and it is really amazing some of the things that can be done along this line. Now that repair parts are hard to obtain, this phase of maintenance is even more important. We have repaired cracked heads of tablet machines, feed shoes, and ejection arms by brazing. It is even possible to fill in broken gear teeth and file them to run smooth. Worn bearings and undersized shafts can be corrected by boring out the bearing and building up the shaft by arc welding and then turning to size.

SUBSTITUTION FOR TANKS—glass-lined and those fabricated of corrosion resistant material. Again going back for ten or fifteen years, we can turn to wooden tanks. Such tanks in smaller sizes can be made portable, provided you have some old casters around the plant. One important thing to remember, however, about cypress tanks is that they should never be supported by the chine of the tank. A wooden framework should be placed under the bottom of the tank so that the entire weight is supported by the bottom. We have been using such a portable cypress tank in our plant for a number of years for making up a non-medicinal product containing about 25% hydrochloric acid. This is still in good condition. Another important point to remember, however, is that between times when the tank is in service adequate precautions must be taken to prevent the tank from drying out. For the repair of bare spots on glass-lined tanks there are several products on the market. Much of the success of such repair depends upon the care used in their application. Repairs in tanks made of corrosion resisting material can be made by welding with the same material with which the tank was fabricated. If such welding rod is not available, brazing with silver solder can be substituted.

SUBSTITUTION IN MACHINES. Since the large portion of our business is private formula and special packages put up to the customer's requirements, this necessitates special machines and special attachments. This is especially true in our Finishing Department. For some time, we have been following a program of standardization of labels, bottles and caps. Many times if the engineer is brought in on the job soon enough certain small changes can be made to the package which will lend itself to filling and finishing on available equipment and hence, the necessity of special attachments avoided.

Our orders generally fall into three classifications. Short orders up to one gross, short runs from one to ten gross and large runs over ten gross. All of our finishing equipment with the exception of the conveyors is portable. In this way, one piece of filling equipment may be substituted for another in the line in very short order. On large runs we have standardized on Pony Labelrite machines and the biggest part of the change parts for this labeller can be made of wood. We have two master plates for each machine and while the labeller is being run on one job, the mouthpiece plate for the next job can be attached to the other master plate. For wraparound labels on round containers, we use a round can labeller which requires no change parts. For short runs, if we have label parts available we use one of our old-style World labellers. If we do have a part available rather than try to obtain a new part or make a part, we use table gummers. We have the operator on the operation just preceding the labelling operation pre-position the bottle on the conveyor belt in such a way most advantageous for the girl running the table gummer to position the label on the bottle. The next girl on the conveyor merely has to wipe the label down and only occasionally is extra straightening necessary.

It has previously been the practice in our Finishing Department to separate the filling and finishing operations on short orders. The filling would be done on whatever equipment available whether high-speed or slow-speed, the bottles were then put in wooden crates on flats and at some later time taken out of the crate and the rest of the finishing operation performed. Primarily as an expedient of saving space used in storing this semi-finished material, we attempted to match up the filling operations and labelling operations of comparable speed. As a result, we found that almost invariably our overall finishing costs were cut by at least 50%. This was due primarily to the saving in the labor of handling the package twice and saving the labor necessary to wipe off dust that might have collected on the bottle during storage. Even though in some cases our production per clock hour was decreased, our production per man hour was almost in-



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Plasma must be finely filtered under sterile conditions. Republic Filters, with its wide experience in ultra filtration, developed a blood filter with special Republic-process sheets, which are aiding the army and navy medical staffs to safeguard human life. While Republic Filters is now occupied with war phases of filtration, our laboratory technicians are always ready to serve you. Get in step with the latest advances in scientific filtration by writing for new Republic Catalog.

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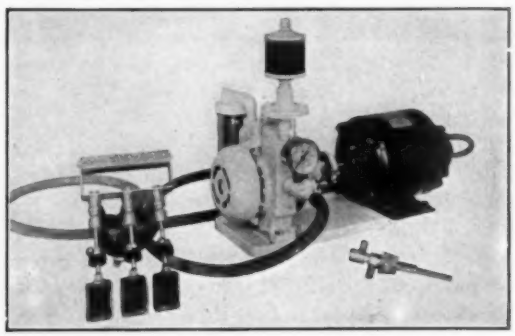

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variably doubled. This also is quite an item throughout Detroit for manpower is so scarce and rates are relatively high.

On some new jobs that have come in since the War, we would have liked to have built or obtained special equipment to carry out the finishing operation. Since it was out of the question to get new equipment we had to do these jobs by hand. If the jobs were large enough to warrant it, we turned to motion studies to increase our production. Usually the jobs were not large enough for any elaborate studies but by just applying the fundamentals of motion study and making a few gadgets out of wood to aid in the hand operations, and lining up the supplies within easy reach of the operator, amazing results can be accomplished. We had formerly taken the attitude that our girls had done similar jobs for a number of years and by just giving the jobs to them, they would soon get on to doing it the fastest way. However, with many of our old girls going into defense plants at previously unheard of wages, we found that we had to find out the best way to do the job ourselves and then train the newer girls to do the job our way. We soon learned that with a little patience and coaching the newer girls could beat the production of the older girls who had preconceived ideas of how to do the job.

SUBSTITUTES FOR MAINTENANCE ITSELF. By following a program of preventative maintenance, much maintenance of a real break-down nature can be prevented. Up until about ten months ago all that constituted a maintenance order in our plant was for someone to call the maintenance department on the telephone and say that such and such a machine was broken down. If it was a machine that was holding up production the maintenance crew would get on it right away, sometimes at the expense of the job that they were working on at the time. If the break-down occurred on a machine on which production was not urgently needed, the maintenance was probably put off to a later date, but usually before this was fixed up again this machine was then holding up production. If one of our maintenance men was going to or from or working on some break-down some foreman or operator would draw his attention to some machine that was not working just right, the maintenance man would probably make a mental note to correct the situation later. But in the rush of other things it would not be taken care of until an actual break-down occurred. Then the argument always came up as to whether it was or was not called to the maintenance department's attention at such a time when preventative maintenance could have substituted for costly break-down maintenance. Such situations are being corrected through the use of maintenance orders. In our plant all requests for maintenance regardless of how trifling the matter may be must be placed in writing on a standard form and signed by the foreman of the particular department in which the maintenance is requested. If the job is urgently needed the foreman of the department calls the foreman of the maintenance department and the job is given immediate attention if possible, but just the same a written order must be presented before the work is done.

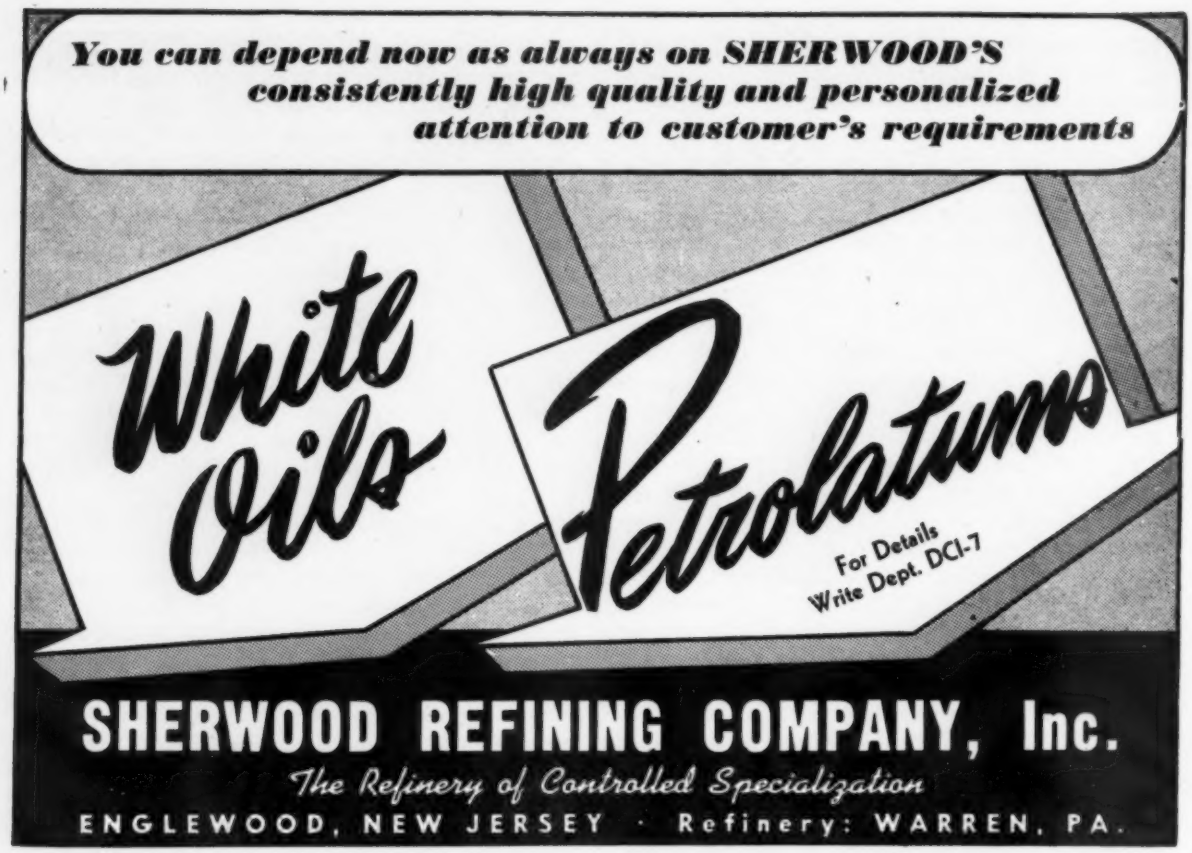
The biggest part that these maintenance orders play, however, is in connection with preventative maintenance. We encourage and even hold responsible, operators and foremen to call to the attention of the maintenance department anytime a machine is not acting just right. If an inspection shows that immediate repair is not necessary, provisions can be made for repair at a later date and an estimate can be made by the maintenance men as to about when this repair will be needed. Time is then alloweed to make or obtain spare parts where possible, but at any rate the maintenance order is still on file until the job has been completed. In this way responsibility is definitely fixed at all times.

Another very important element in preventative maintenance is that of proper lubrication. Formerly, we tried just having a helper in the maintenance department do the oiling throughout the plant because we felt it was a waste of time to have a regular mechanic spend at least one whole day out of each week performing this job. Error in our judgment became apparent after about six months when we ran into a series of burned out motors and bearing troubles of all sorts. We came to realize that a good mechanic doing a thorough job of oiling all over the plant at least once a week was the greatest single factor in preventative maintenance. His trained ear and eye were able to spot trouble before it became serious. In this way we combined inspection and proper lubrication into the same task.

A third feature in preventative maintenance and in which the written maintenance order becomes a handy tool is in the long range planning of preventative maintenance. Schedules can be set up for periodic cleaning of motors, boilers cleaned out and inspected, and other periodic inspections by writing up maintenance orders for these jobs months and even a year in advance. On these maintenance orders is provided a space for when the job is wanted. In this way, the maintenance foreman can better plan his job.

Within the last week or so and since the above was written, there has come through from the W.P.B. the CMP Regulation No. 5. This regulation will apparently give definite relief in the way of maintenance, repair and operating supplies, beginning April 1st and extending to June 31st. In this regulation they define "maintenance" as "the minimum upkeep necessary to continue a facility to sound working condition" and "repair" as "the restoration of a facility to sound working condition when the same has been rendered unsafe or unfit for service by wear and tear, damage, failure of parts or the like," provided that neither maintenance nor repair shall include the improvement of any plant facility or equipment, by replacing material which is still usable, with material of a better kind, quality or design except as provided in paragraph (b)(3). Para-

(Continued on page 89)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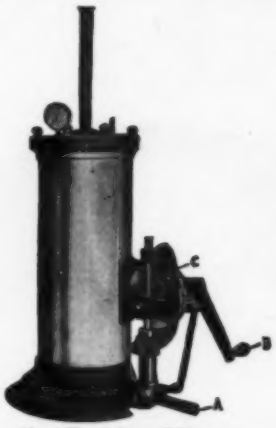

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Foot Power Crimper

Colton Hand Operated Machines

No. 3 Collapsible tube filler (hand operated) for tubes up to 1" x 5½" long.

Hand operated tube closer made in two sizes and styles to seal tubes with the Colton Clipless Closure or to seal tubes for applying clips.

Foot operated crimper for applying final corrugation to the closed end of the Colton Clipless Closure which gives it a decorative appearance as well as greater rigidity to the closed end of tube.

We also furnish this same machine without the crimping jaws for applying clips.

Our catalog No. 11 illustrates a variety of fillers and closers to suit production required. Please make us acquainted with your requirements and capacity, and we will be pleased to recommend machines best suited for your purpose.

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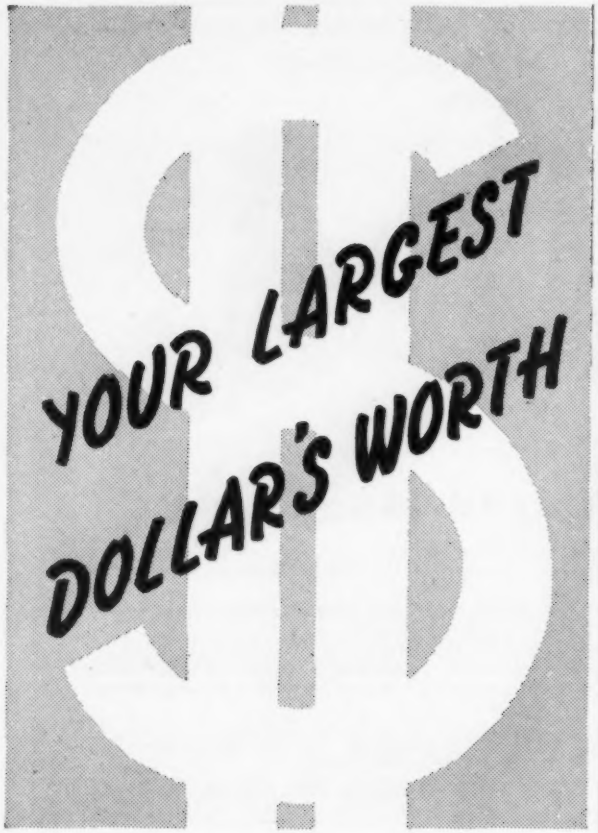

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NAIL POLISH DERMATITIS

Doctors W. H. Guy and F. M. Jacob, of Pittsburgh, writing in the Journal of the American Medical Association, June 12, 1943, have the following to say on nail polish dermatitis:

Because of an apparent increased incidence of nail polish dermatitis and because the condition is so frequently not recognized, we venture again to call it to the attention of the profession.

Within a period of twenty-three days recently we have seen 25 cases. None of these had been recognized. The condition varied in duration from a few days to several months. A representative percentage of the group of patients had been under dietary and other internal forms of treatment, including that directed toward "acidity." The majority of these patients presented a simple dermatitis with edema of the eyelids associated with a dermatitis of varying severity involving the neck. Several presented areas of dermatitis over the shoulders where contact was made in the adjusting of shoulder straps. The patches developed on the thighs where contact was made by the patient pulling down her girdle while dressing. Two instances were noted on the legs below the knees where liquid nail polish had been applied to stop runners in stockings. One patient had a patch of dermatitis on the forearm where contact was made by flexion with a patch test above the elbow.

Both colored and clear polishes were found to be at fault, but naturally most outbreaks were traced to the tinted brands. Seven different manufacturers were represented, and the very expensive brands were quite as frequently at fault as the cheaper ones. One representative manufacturer assured us that attempts to identify and eliminate the offending fraction would not be practical at present because of the extreme variation in composition of different lots of basic materials.

All cases were proved by patch tests. It was frequently difficult to convince patients of the source of their trouble, and they were loath to eliminate liquid nail polish. It seems advisable to point out that we frequently found it necessary to continue the patch tests for several days to produce a positive reaction. All cases cleared promptly following discontinuance of liquid nail polish and the application of soothing agents.

HAIR DRESSING

U. S. Patent 2,305,356, assigned to Rohm & Haas Co., describes an aqueous solution containing about 0.1 to 2 per cent of a polymeric acrylic acid derivative which is used for depositing on the hair a hygroscopic coating substantially free from flaking tendencies and tackiness.

NEW DENTIFRICE

German Patent 708,912, assigned to E. I. du Pont de Nemours & Co., describes a dentifrice using a free-flowing powder containing sodium perborate, especially of the formula, $NaBO_3.4H_2O$ and 4/10 per cent of magnesium benzoate.

HAIR BLEACH

German Patent 709,932 describes a hair bleach containing a sulfonated oil, in which the sulfuric acid radical may be linked as an ester or as a sulfonic acid, and a substance yielding oxygen, such as hydrogen peroxide, per salt, etc. The alkaline pH over 7 is adjusted with metal salts or complexes acting as catalysts for releasing oxygen.

ALLANTOMIDE VAGINAL CREAM

Allantomide Vaginal Cream, a new product for control and cure of certain conditions of the vagina, exocervix, and vulva, has been announced by the National Drug Company.

Allantomide Vaginal Cream contains 15 per cent sulfanilamide, 2 per cent allantoin in a specially developed hydrophilic base buffered to a pH of 4.5 with lactic acid. It is odorless and stainless, purely locally active, and offers a prompt, convenient, and effective method for treating many ulcerative lesions of the lower genital tract of the female.

Many authorities claim that sulfanilamide is the sulfonamide of choice for topical use, because of its solubility and quick bacteriostasis. The experience of the National Drug Company with its Allantomide ointment has shown this to be true. According to other studies, allantoin is a stimulant to healing in burns, wounds, and ulcerations.

Allantomide Vaginal Cream is indicated for use on the following lesions of the exocervix, vagina, and vulva: gonorrheal cervicitis and vaginitis, vaginal and vulval condylomata, chancroids, acute trichomonas vaginalis vaginitis, granuloma inguinale, lymphopathia venereum, and post-cauterization wounds of the cervix. The company states, "while Allantomide Vaginal Cream is not curative for such lesions as condyloma acuminatum, granuloma inguinale and lymphopathia venereum, it reduces rapidly nonspecific secondary infections to a minimum."

POISON IVY TREATMENT

A composition for treating poison ivy containing water, urea, and casein is described in U. S. Patent 2,322,565, granted to Robert M. Cole, Bryn Athyn, Pa.

ISOPROPYL ALCOHOL AVAILABLE FOR:

SHAMPOOS: Isopropyl Alcohol aids in cleaning hair and scalp thoroughly and in leaving hair soft and lustrous.

HAIR AND SCALP PREPARATIONS: Isopropyl Alcohol as a vehicle for hair and scalp preparations aids the cleansing and antiseptic value of the tonics.

STERILIZING SOLUTIONS: 40% Isopropyl Alcohol will kill dried Bacillus Coli in ¼ minute. 50% Isopropyl Alcohol is equivalent to 70% ethyl alcohol for killing Bacillus streptococcus and staphlococcus.

BODY RUBS: Isopropyl Alcohol evaporates slowly, thereby prolonging the cooling effect when used in body rubs. Isopropyl Alcohol has no denaturants.

FACE AND HAND LOTIONS: Isopropyl Alcohol evaporates slowly, has little tendency to dry the skin, and aids in keeping the skin soft.

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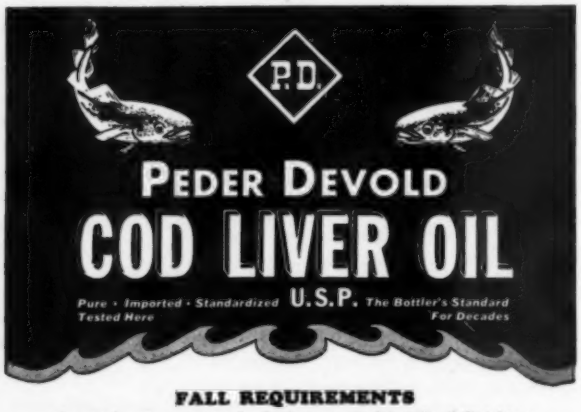

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Abrasion of Teeth

(Continued from page 31)

The products which have been accepted by the Council on Dental Therapeutics as indicated in the eighth edition of Accepted Dental Remedies are marked with a star in Tables 1 and 2. It will be noted that they comprise about one-fourth of the powder and paste products. In the Council Accepted group are found mainly the less abrasive products. Inasmuch as these accepted brands are advertised without exaggerated and unfounded therapeutic claims, it can be seen that an ethical product of adequate cleansing power can be readily selected without going outside the Council's list.

None of these liquid preparations has been accepted by the Council on Dental Therapeutics, possibly because there has been as yet no decision as to whether the amount of abrasion caused by them is adequate for cleansing. In fact, it is freely admitted in connection with at least one of these that additional abrasive action to keep the teeth clean should be sought periodically by using a powder once a week. In addition, it is well known that certain of these liquid preparations are advertised with exaggerated claims, or with "scare" types of advertisements, which would make them unacceptable according to Council standards.

Discussion

Among the products tested by us, and which are probably representative of the more commonly used dentifrices, there are no compounds so unduly abrasive as to be clearly objectionable. The day when pumice, cuttlefish bone and other highly abrasive materials were included in commercial dentifrices is definitely past. All of these products have, we believe, a range of abrasiveness that renders their use over many years, with a correct brushing technic, unlikely to cause any serious harm to the teeth. However, it is interesting to note that those dentifrices that are promoted with the most blatant type of advertising—those advocated with striking words or phrases: "whyten," "bryghten," "dull dingy stains," "smile of beauty," "do as your dentist does," etc.—are among the most abrasive.

In the mouths of a reasonably high percentage of persons, the use of the alkyl sulfate liquid dentifrices results in uncleanliness of the teeth in spite of vigorous brushing. Over their entire cosmetic surface, the labial surfaces exposed to light are covered with a resistant brown or black stain. A peculiar strain of chromogenic organisms in the oral flora of the susceptible person may find the alkyl sulfate or the vegetable gum base of the solution an excellent culture medium for growth and subsequent pigmentation.

As to whether the liquid dentifrices, with their almost complete lack of abrasive power, are desirable remains to be settled by future investigations and clinical observations. No one will object to the basic assumption that a certain degree of abrasion is desirable in order to remove the adherent mucous and other adsorbed protein materials or stains from the teeth. For some persons in whom the amount of this stain is minimal, a very slight degree of abrasion, such as is afforded by the use of a liquid dentifrice or even just a wet brush, may be adequate to keep the teeth in a satisfactorily clean condition. For many persons, however, this slight amount of abrasion is not sufficient, since in the advertisements for the liquids, statements are made that if the teeth are not kept clean by use of the liquid, they can be brushed with a more abrasive powder once a week and thereby become clean at least that often. If it is desirable to get the teeth really clean once a week by the use of a moderately abrasive powder, it is at least conceivable that it might be still more desirable to keep them that way by the use of an adequate cleansing material in the first place.

Wearing away of teeth from mastication, and from malocclusion is, of course, a well-known phenomenon. It is not, however, a common cause of tooth failure, since the wear is produced so gradually that laying down of secondary dentin and recession of the pulp are apparently able to keep ahead of the process of attrition. It is possible that the very slow abrasion in the cervical regions reported by Kitchin and Manly may be much the same, and may be more theoretically than practically objectionable. If these grooves do not result in a functional failure of the tooth over a normal life span, this may be a price that might well be paid for keeping the teeth in a hygienic and clean condition and the mouth free from odors. If, however, this abrasion leads to failure of the tooth as a functioning member of the body, it will of course, be objectionable, and other ways of cleaning will have to be used.

At present, there is no adequate factual basis for a conclusion as to the functional importance of such grooves in the necks of the teeth, and such evidence as is available has been secured under the auspices of a manufacturer with a direct commercial interest in the results of the investigations. In view of the fact that such grooves have not been demonstrated to be caused by the use of dentifrices now on the market, and that grooves of the depths reported have not been actually demonstrated to be a serious cause of tooth failure, it would seem desirable not to abandon the use of the ordinary dentifrice materials until more convincing evidence as to their harmfulness is brought forward. Possibly the needs of the situation could be met by using the pastes or powders shown here to cause degrees of abrasion similar to that of the liquids.

Careful consideration of Kitchin's report leads to the conclusion that he mainly reaffirms a frequent clinical observation: the older the patient-age group, the greater the amount of recession of the cervical gingiva, resulting in a proportional increase in the amount of tooth exposed below the cemento-enamel junction. If no infectious or traumatic injury has been responsible, this condition may be attributed to a physiologic

(Continued on page 98)

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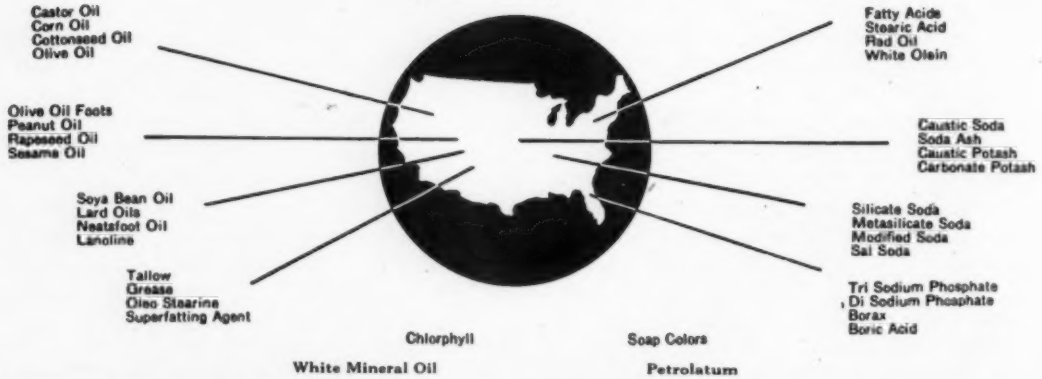

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ADVANCING THERAPY

SULFAPYRIDINE FOR LEUKOPENIA

Doctors Robert Heilig and S. K. Visveswar, Mysore, South India, report in the Journal of the A. M. A., June 26, 1943 as follows:

Two cases of highly toxemic infections of the urinary tract were characterized by considerable leukopenia and granulocytopenia.

In both of them small doses of sulfapyridine, without any other treatment, brought about a rapid improvement of the general condition, especially of the white blood picture, leading to recovery from seemingly hopeless conditions.

Eight control cases were studied to see whether quinine or the methenamine-sodium salicylate-caffeine with sodium salicylate mixture administered by intravenous injection diminishes the amount of leukocytes or the percentage of neutrophils. Such changes were not seen in these cases.

PROPHYLACTIC USE OF SULFAGUANIDINE

Lieut. James Clifford Scott (M. C.) U. S. N. R., reports in the Journal of the A. M. A. June 26, 1943, on the prophylactic use of sulfaguanidine as follows:

1. A rapidly progressing epidemic of bacillary dysentery among mentally handicapped children receiving the best of care was stopped abruptly by the prophylactic use of sulfaguanidine in all well children and personnel in the building after other segregation and treatment methods had failed. The dosage for each subject, whether adult or child, was 0.5 Gm. three times a day by mouth. Similar use has not been mentioned in any literature found.

2. In a comprehensive review of the literature on sulfaguanidine it was noticed that in all reports of reactions of any serious degree the drug was used for patients who were known to have intestinal ulceration or in diseases in which it is usual to expect breaks in the continuity of the intestinal mucosa. I believe it is dangerous to use the drug in the presence of breaks in the intestinal mucosa.

This opinion does not necessarily apply to the use of the drug in the presence of breaks in the intestinal mucosa such as repaired operative incisions in the intestinal wall which have been closed and present no considerable area of denuded wall for absorption.

3. No toxic signs or symptoms of any kind were noted either among our ill patients or among those receiving the drug therapeutically. This is in agreement with most other writers who have used the drug for bacillary dysentery.

4. Used therapeutically, the drug was dramatically successful in every case in which it was used.

5. Because it is felt that other papers have established the effectiveness of the drug used therapeutically, case reports and charts which had been prepared from then are here omitted.

SULFADIAZINE IN RESPIRATORY INFECTIONS

Lieut. Col. Howard A. Rusk, and Capt. Arie C. van Ravenswaay, (MC) A. U. S., reports on sulfadiazine in respiratory tract infections, in the Journal of the A. M. A., June 19, 1943, as follows:

In a clinically controlled series of 670 cases of simple respiratory tract infections there was no significant difference, either in the length of the febrile period or in the period of hospitalization, among the group receiving sulfadiazine as compared with the control group receiving symptomatic treatment.

ACTIVITY OF SULFAPYRAZINE

Doctors L. H. Schmidt and Clara L. Sesler, Cincinnati, report in the Journal Pharmacology & Experimental Therapy, Baltimore, March, 1943 as follows:

The activity of sulfapyrazine against infections with beta hemolytic streptococci was compared with that of sulfadiazine, sulfathiazole, sulfapyridine and sulfanilamide. Sulfapyrazine was usually considerably more effective. The data suggest that the superior activity of sulfapyrazine, and also of sulfadiazine, over equal doses of other sulfonamides is due to the absorption and excretion characteristics of the two drugs, which permit the maintenance of effective concentrations in the blood between treatments. The activity of all five drugs was essentially the same when the average concentrations in the blood were the same.

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A solid base material for suppositories, bougies, or the like, which is substantially unaffected by heat at body temperature but which will abstract moisture from surrounding tissue and release a medicament in the presence of said abstracted moisture at a desired rate, consisting of a water absorbing agent selected from the group consisting of powdered agar, elm, cinnamon bark, corn meal, thyme, kaolin, psyllium seed, bentonite clay, okra and pectin; a water absorption retarding agent selected from the group consisting of petroleum jelly, carnauba wax, and powdered stearic acid; and a water abstracting agent selected from the group consisting of glycerin and potassium acetate. U. S. Patent 2,321,694, application October 30, 1939. Assigned to Gromiller, Inc., Los Angeles.

NIGHT BLINDNESS

Of all ocular conditions giving rise to night blindness, Dr. A. A. Knapp states that retinitis pigmentosa stands in the forefront. Fortunately it is a

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rare disease. Night blindness may be caused by a deficiency of at least two vitamins, A and D. Another condition often complicated by night blindness is myopia. Among 93 patients with various degrees of myopia, 64 complained of poor vision in reduced illumination. As routine treatment these 64 were given 60 drops of viosterol and at least 1 Gm. of available calcium. With some the vitamin D dose was increased to 200 drops daily. After six to twenty-seven months of observation, during which time the patients were checked at least once a month, there was an actual reduction of the myopia in 20. Casts of the anterior segment of many eyes and in one instance a fundus photograph before and after treatment proved beyond doubt that the eyeball in both its anterior and posterior segments may shrink following treatment with vitamin D and calcium. Of the 64 persons suffering from poor vision at night, 48 noticed distinct improvement in respect to their nyctalopia in no way dependent on their myopic status. Several weeks usually elapsed before definite clinical improvement was seen. The majority of those patients whose myopia was reduced spoke of their greater ability to see after nightfall and others had better vision at night when their myopia was stationary or even in the presence of an increase of their near-sightedness. In 16 the condition apparently remained the same. During the treatment of both the patients with retinitis pigmentosa and the myopia toxicity was watched for. Seldom did a toxic sign develop—a mild rash, nausea, vomiting or constipation—but those symptoms disappeared soon after the medication was stopped or reduced. U. S. Naval Medical Bulletin. March 1943.

QUICK-DRYING CALAMINE

The substitution of acetone for 25 per cent of the lime water in Calamine Lotion, N. F., produces a mixture that is cooling and soothing to irritated skin and dries much more rapidly than the regular calamine lotion, according to Lloyd L. Boughton, of the University of Kansas (*Bull. N. F., 11: 3-4 (March-April, 1943) 66*). Acetone is a critical material during the war emergency, but this suggestion is one which pharmacists might well file for consideration after conditions return to normal. A calamine lotion which dries more rapidly would be of advantage, particularly in its application on children who find it difficult to stand still for the period it takes for the ordinary lotion to dry.

SULFATHIAZOLE IN IMPETIGO

Treating 120 cases of impetigo with sulfathiazole ointment and paste, Drs. Peterkin and Jones, of the English Army, obtained 77 per cent cures in an average length of time of 6.8 days, as compared to the average of 14.6 days required to cure the disease by previous routine treatments. Of the 27 cases that were not cured, 17 were treated with a 2½ per cent cream, which evidently was too low a concentration of the drug.

The two dermatologists used ointments made with a water-miscible base and pastes made with 15 per cent zinc oxide and 15 per cent starch. The vehicle made little difference in the effectiveness of the treatment.

Results with a five per cent concentration were considerably better than those with a 2½ per cent product, but increasing the concentration to 10 per cent did not add appreciably to the effectiveness of the preparation. The 2½ per cent ointment seemed to clear up the streptococcic lesions, but did not affect the staphylococcic infections. *Bril. Med. Jour., March 13, 1943, 318-320.*

NON-FILTERED ANTISEPTIC

The N. F. monograph for preparing Antiseptic Solution directs that the solution be chilled to 10° C. and filtered in order that the resulting product be clear. Lloyd L. Boughton, of the University of Kansas, believes it is desirable to have a formula which does not require chilling and filtering, and he suggests that the reason this clarification process is necessary in the case of the N. F. solution is the fact that it contains an excess of volatile oils and volatile oil principles. To remedy this situation, he suggests that the amounts of thymol, menthol, and methyl salicylate be decreased and that the following formula be used:

Boric acid	25.0 Gm.
Thymol	0.4 Gm.
Chlorthymol	0.5 Gm.
Menthol	0.1 Gm.
Eucalyptol	0.1 Gm.
Methyl salicylate	0.1 Gm.
Oil of thyme	0.01 cc.
Alcohol	300.00 cc.
Water, *q. s.*	1000.00 cc.

Dr. Boughton states that the proposed formula satisfies all of the requirements of the N. F. monograph, including the test for antiseptic value. The solution is clear at 10° C. and therefore requires no filtering. Such a formula, which does not need to be chilled and filtered, would greatly simplify the task of the retail or hospital pharmacist who makes up Liquor Antisepticus in large quantities. *Bull. N. F., 11: 3-4 (March-April 1943) 63-65.*

GAUZE WITH SULFATHIAZOLE-PETROLATUM

The use of gauze strips impregnated with petrolatum on operative incisions, before dressings are applied, is an accepted surgical procedure. Wishing to contribute greater security to post-operative areas, Dr. Voight Mooney, of the Allegheny General Hospital, Pittsburgh, Pa., studied the advisability of adding sulfathiazole to the petrolatum. He planted 2-inch gauze strips in a pan of 5 per cent sulfathiazole-petrolatum ointment. The pan is sterilized in an autoclave for 45 minutes and 20 pounds pressure.

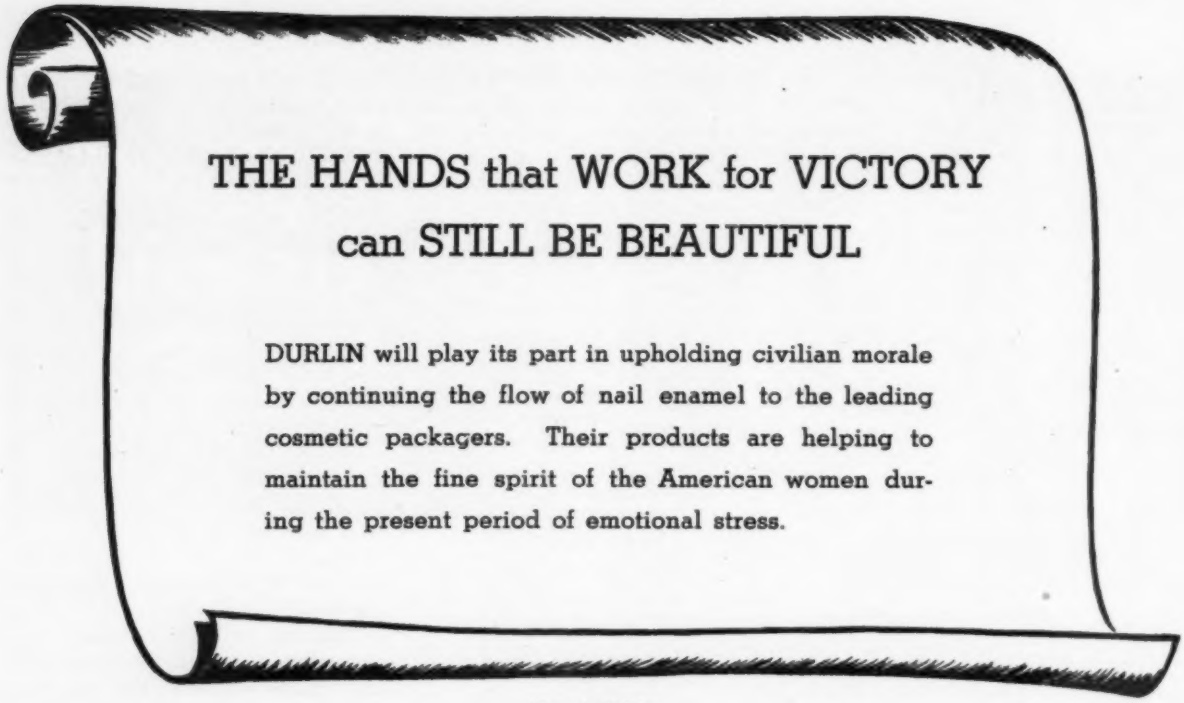
With the sulfathiazole gauze, incisions heal faster and stitch abscesses are virtually unknown. The gauze has also been used successfully as a packing in the treatment of osteomyelitis.

Studies conducted by Dr. F. A. Taylor indicate that there is no evidence of decomposition of the sulfathiazole during sterilization. *Amer. Jour. of Surg., 59:43, 55.*

ALLANTOMIDE WITH SULFATHIAZOLE

National Drug Co. has introduced a new form of its Allantomide Ointment —to be known as Allantomide with Sulfathiazole. The formula is 5 per cent sulfanilamide, 5 per cent sulfathiazole, and 2 per cent allantoin in the specially developed, greaseless base.

Allantomide with Sulfathiazole was developed in response to a demand by physicians for an agent which would provide more specific control over certain surgical and dermatological conditions involving staphylococci. The regular Allantomide with 10 per cent sulfanilamide and 2 per cent allantoin has established an enviable record in controlling infections and stimulating healing in a variety of conditions, particularly wounds, burns, and external ulcers. However, it is well known that sulfathiazole exerts a more specific, prolonged bacteriostatic action on staphylococci while the more soluble, quicker-acting sulfanilamide provides a similar specificity toward streptococci. Clinical studies show that the new Allantomide with Sulfathiazole is effective in such conditions as impetigo, furunculosis, osteomyelitis, carbuncles, infected eczema, and similar infections.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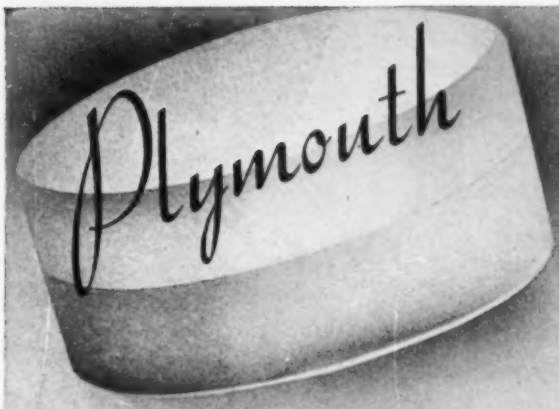

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CITRONELLA SHORTAGE

A dangerous shortage of oil of citronella Java has occurred. As is well known, this oil is one of the most important to the drug and cosmetic manufacturers. Since the East Indies are now in the hands of the enemy, no replacements are available except for small quantities from Guatamala. The demand for citronella Java has increased greatly over the last decade since it was the starting point for the manufacture of synthetic menthol,—large quantities of which are being used to replace the natural product which can no longer be obtained from Japan and China.

The soap makers and perfumers have long been users of the derivatives of this oil, namely geraniol, citronellal, citronellol, and hydroxycitronellal, and the question as to the replacement of these derivatives will soon arise. Prices for remaining stocks of citronalle Java range from $2 70 to $3.10 per pound in drum quantities, and many essential oil firms have withdrawn quotations.

If the shortage persists for any length of time it is feared that rose, lily, and other fancy scents will be adversely affected. A great deal will depend upon the ingenuity of the aromatic chemical manufacturers in producing these derivatives from other sources. But at the present time the outlook is decidedly critical.

Where citronella Java is used alone in formulations, the citronella Ceylon has been used in many instances. This is still available in limited quantities,—the supply depending upon the available shipping space. Unfortunately this oil does not contain appreciable quantities of either geraniol or citronellol, and therefore the oil is hardly worth processing since the resultant products are of poor quality.

RECTIFICATION OF PEPPERMINT OIL

V. I. Varentsov. *Ibid.* 108-14.—Rectification under ordinary pressures, *in vacuo*, steam distillation, and distillation with water were compared; best results are obtained by distillation with water. There is a definite relation between the organoleptic evaluation of the product and its physical constants. The content of menthol and the odor of the oil improve with the increase in the d. and of the angle of rotation.

SEPARATION OF ANETHOLE FROM FENNEL OIL

I. A. Shchetinin. *Ibid.* 137-40.—The total content of anethole separated is approximately 60 per cent. Only half of this amount can be brought to the pharmacopoeial product by a gradual rectification. Both the pharmacopoeial anethole and the anethole remaining after the refining can be used for the synthesis of anisaldehyde. The yield is 50 per cent.

ISOMERIZATION OF METHYLCHAVICOL INTO ANETHOLE

I. V. Vinogradova and N. F. Novotel'nova. *Ibid.* 141-8.—For isomerization of pure methylchavicol, of the methylchavicol fraction of fennel oil and of wastes, the optimum temperature is 130° and the optimum duration of the reaction is two hours. Two parts of solid potassium hydroxide are required per 1 part of pure methylchavicol; 0.25 part per 1 part of the oil.

P-CYMENE TRANSFORMATION INTO THYMOL

R. Ya. Rafanova. *Ibid.* 152-65.—By nitrating *p*-cymene contained in azhgon oil and in sulfite turpentine it is possible to obtain from 35 to 37 per cent of nitrocymene in the first case and from 55 to 75 per cent in the second case. Electrolytic reduction in an acid medium is best for conversion of nitrocymene to aminothymol. Diazotization of aminothymol and the splitting off of the diazo group yields approximately 73 per cent of thymol.

COMPOSITION OF KOLYURIYA OIL

R. Ya. Rafanova. *Ibid.* 179-82.—Kolyuriya oil contains eugenol 98 per cent and an aldehyde similar to phellandral 1 per cent, alcohols (which could not be identified), a liquid hydrocarbon and traces of paraffin.

PALMAROSA OIL OF SUKHUM ORIGIN

A. V. Bulanova. *Ibid.* 183-6.—The content of geraniol in palmarosa oil of Sukhum origin is identical with that of the imported palmarosa oil. The oil contains geraniol 77.68 per cent, citronellol 1.18 per cent, traces of aldehydes and terpenes (not studied) and sesquiterpene alcohols in amounts of approximately 3.9 per cent.

FLAVOR CARRIER

Licorice, treated with water until it loses its odor and flavor, is used as a carrier for medicinal and flavoring substances according to Adolf Diesel in German Patent 710,028.

OLEORESINS IN EMULSIONS

U. S. Patent 2,307,078, assigned by Jesse O. Reed to the Secretary of Agriculture and his successors in office, gives a method for recovering oleoresins from emulsions. An arrangement of application is described, and a method of operation is employed which involves heating and diluting emulsified oleoresins with turpentine in an amount sufficient to break the emulsion and to lower the specific gravity below that of water, then permitting the diluted oleo-

TECHNICAL SPECIALTIES

MORE and more, the application of odoriferous principles as a means of neutralizing or "blanketing" the unpleasant and sometimes offensive odors which characterize certain commercial products is becoming a merchandising factor of measurable consequence. Obviously this use of aromatics in so-called technical products differs from their use in perfumery in that the problem is *not* one of creating an aesthetic appeal, necessarily, but rather one of modifying an undesirable quality. And since the profit margin on most technical preparations is small, a major consideration in the selection of a deodorant is its economical coverage of the product's objectionable character. This must be as complete and as pleasant as possible and without interference with the operation or purpose for which the product is intended.

It has been found that certain of the cheaper or stronger essential oils—or their imitations, and sometimes even straight aromatic chemicals, fulfill this purpose quite effectively. But after years of research and cooperation with the manufacturers of many of our country's leading technical products, the conclusion seems well established that no single oil or chemical will give as complete and satisfactory coverage per dollar spent as will a compound designed specifically for a definite technical use. For this reason, the manufacturer's best procedure before adopting any one masking or odorizing agent is to have his product subjected to careful laboratory observation in order to determine the most effective and least costly means of accomplishing the desired results. Every product represents a separate and distinct problem and should be treated as such.

The accompanying list of Technical Specialties suggests but a few of the many possible products and applications wherein the neutralization or reodorization of unpleasant odor effects is being achieved economically through the use of specially prepared, low cost aromatic compounds.

•

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BOUQUET #149 ..... *A sweet, strong vanilla type.*

DEODORANT #9 ..... *A powerful, diffusive, covering agent.*

JAVOLLAL ..... *An effective substitute for citronella. Imparts a cleaner, finer, more appealing odor to insecticides, disinfectants and technical mixtures.*

NEUTROLEUM ALPHA .....
NEUTROLEUM GAMMA ..... } *These are among the most widely used deodorizing materials. They neutralize and perfume at very low cost. Also useful in all preparations based upon petroleum distillates.*

SAFRELLA ..... *This is a low priced substitute for artificial sassafras which it resembles closely in odor and strength. It is used in insecticides, germicides and numerous other technical mixtures.*

CLEANING FLUIDS and NAPHTHAS

DEODORANT #12 ..... *Powerful covering agent, somewhat fruity. Very effective.*

DEODORANT #13 ..... *Lilac base, topped with a diffusive, fruity character.*

DEODORANT #14 ..... *Pine base with a pronounced topnote.*

SPRAY DEODORANTS

The following deodorants effectively cover the objectionable odor of the toxicant as well as that of the base material. They are highly soluble and can be used alone where a mildly scented or practically neutral odor is desired, or in conjunction with a perfume.

DEODORANT #11 ..... *Vanilla type.*

DEODORANT #P-36 ..... *A sweet, powerful lilac complex, especially for sprays based upon Lethane 384 Special.*

DEODORANT #P-38 ..... *A diffusive, pleasant jasmine character.*

DEODORANT #P-40 ..... *Orange blossom type.*

DEODORANT #P-41 ..... *A lily complex.*

DEODORANT #P-43 ..... *A fruity, jasmine type.*

DEODORANT #62 ..... *A technical bouquet, possessing clean, refreshing, lasting odor. Provides good coverage.*

THANITE DEODORANT #59 ....
THANITE DEODORANT #60 ....
THANITE DEODORANT #61 .... } *These are very effective covering agents. They provide an odor neutralizing effect upon the toxicant, especially Thanite. #59 is a bouquet effect, slightly oriental; #60 is a floral bouquet; #61 is a clean, "neutral" type.*

SPRAY PERFUMES

These compositions are especially designed to give the utmost coverage and to lend to the product a fragrant, appealing note. All are soluble, highly concentrated blends.

BOUQUET #381 ..... *A sweet, spicy bouquet of clean, refreshing character.*

CEDAR #5 ..... *Very popular cedar-pine effect.*

HONEYSUCKLE #15 ..... *A full, deep honeysuckle note.*

INDIAN HAY #6 ..... *A sweet, spicy composition carrying a grass-like note.*

KASMA #8 ..... *A lavender-geranium-petitgrain blend.*

LAVENDER #29 ..... *A distinct lavender type; gives very effective coverage.*

LILAC #28 ..... *This composition has appealing tonality and provides excellent coverage.*

LILY #20 ..... *A fragrant, refreshing note.*

MINT #5 ..... *Fresh, minty character.*

NEW MOWN HAY #7 ..... *A pleasant, new mown hay effect.*

PINE #14 ..... *Straight pine type; has a pungent odor.*

ROSE #64 ..... *Good odor value; economical in use.*

SWEET CLOVER #5 ..... *This unique composition affords excellent coverage. Has a clean topnote.*

SWEET PEA #19 ..... *A good, practical odor effect for sprays.*

VIOLET #22 ..... *Imparts a distinct and characteristic note.*

ALDAROMES (Formaldehyde Perfumes)

These are concentrated perfume combinations designed for masking the odor of formaldehyde. They are directly and clearly soluble in 40% formaldehyde solution and have excellent stability against the formaldehyde itself as well as the other chemicals generally employed in products such as embalming fluids and deodorant sprays.

ALDAROME BOUQUET #122 .... *A fruity effect.*

ALDAROME BOUQUET #124 .... *Heliotrope type.*

ALDAROME BOUQUET #125 .... *Fruity character.*

ALDAROME BOUQUET #126 .... *A sweet, vanillin type.*

ALDAROME JASMINE #24 .....
ALDAROME LAVENDER #25 ....
ALDAROME LILAC #23 .....
ALDAROME PINE #13 ..... } *These are good reproductions of their respective flowers.*

ODOR MODIFIERS (For Isopropyl Alcohol)

Numerous restrictions, including the high cost of ethyl alcohol, have forced manufacturers to adopt isopropyl alcohol as a vehicle for their perfumes. The harsh note of the latter may be covered and the finished product sweetened and mellowed by using these Odor Modifiers in conjunction with isopropyl alcohol in proportions which we shall be glad to recommend.

LAVENDER #35
LILAC #22
WISTARIA #10
These Odor Modifiers may be used in perfumes corresponding to their respective floral types.

O-M SPECIAL..... *An all-purpose type of modifier. Neutralizes the harsh, unpleasant character of the isopropyl alcohol and permits full development of the original odor concept.*

PAINTS and LACQUERS

PAINT DEODORANT #5..... *Vanilla type; very effective.*

PAINT DEODORANT #5 LIQUID..... *A convenient, dilution of the above concentration.*

PARAPASTELS

This group consists of perfume and color combinations, designed to impart in one operation, agreeable fragrance and pleasing color to products made of para dichlorbenzene or naphthalene.

CARNATION #11	*Red*
FRUIT #5	*Uncolored*
HAY #8	*Uncolored*
LILAC #29	*Lilac color*
LILAC #57	*Lilac color*
MINT #8	*Green*
ORANGE BLOSSOM #32	*Orange*
ORIENTAL #39	*Red*
PINE #15	*Green*
ROSE #34	*Old rose*
VIOLET #12	*Bluish green*

OTHER APPLICATIONS

We are prepared to consult with and recommend or develop masking agents and reodorants for numerous other products such as:

CUTTING OILS FUEL and LUBRICATING OILS, LATEX NATURAL and SYNTHETIC RUBBER PRODUCTS, LEATHER PLASTICS, PRINTING INKS, RUBBING ALCOHOLS, STARCHES, TAPE, PASTE or GLUE, TEXTILES, WAXES, POLISHES and SHOE POLISHES, etc.

FRITZSCHE BROTHERS, Inc.

PORT AUTHORITY COMMERCE BLDG., 76 NINTH AVENUE, NEW YORK, N. Y.

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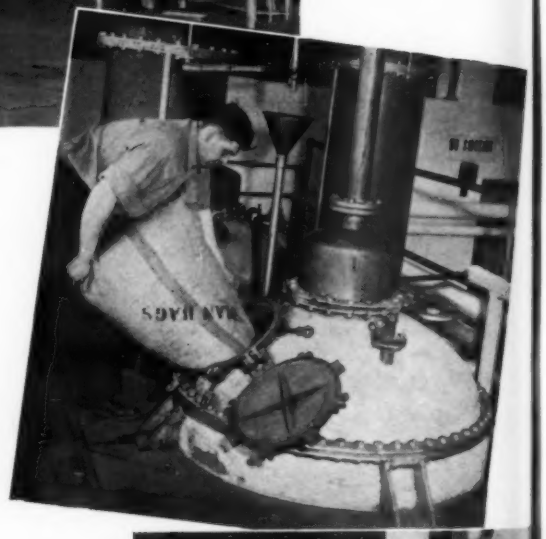
BOSTON CHICAGO LOS ANGELES ST. LOUIS TORONTO, CANADA MEXICO, D. F.

FACTORIES AT CLIFTON, N. J. AND SEILLANS (VAR) FRANCE

BACKGROUND VALUES . . . a PART of the product, APART from the p

Photos, top: A part of our modern still room. Below: Loading a still preparatory to distillation; then, removal of exhausted plant material.



THE privilege of supplying any industry with many of its essential raw materials carries with it certain responsibilities and obligations which the supplier should regard as binding. There is, for example, the responsibility for the purity, quality and uniformity of his products and the obligation to his customers to see that their purchases measure up to these minimum demands. We look upon this as one of our most important functions, and through our growing manufacturing facilities (pictured here in part) where all operations are under the personal supervision of our own experts, endeavor to provide the rigid manufacturing standards and control of raw materials which, in large measure, will be determining factors in the salability of our customer's finished goods.

Let careful comparison of our products prove whether or not they represent the finest that human skill, exacting selection of raw materials and modern, sanitary methods of manufacture can produce. . . . Write us for our catalog.

ESSENTIAL OILS
•
AROMATIC
CHEMICALS

BASIC PERFUME
and
FLAVOR
RAW MATERIALS

Est. 1871

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PORT AUTHORITY COMMERCE BLDG., 76 NINTH AVENUE, NEW YORK, N. Y.

BRANCH STOCKS

BOSTON CHICAGO LOS ANGELES ST. LOUIS TORONTO, CANADA MEXICO, D. F.

FACTORIES AT CLIFTON, N. J. AND SEILLANS (VAR) FRANCE

resin to rise in a static column of water, passing the supernatent liquid, which comprises substantially turpentine-diluted oleoresin, through a jet of water thereby temporarily breaking up the oleoresin into particles in a water medium, introducing the oleoresin at the bottom of a column of water while the temporary condition exists, and then recovering the refined oleoresin at the top of the column of water.

DRYING BASIL

Sun drying and ordinary drying of basil do not affect either the yield of essential oil or the content of phenols. The best yield of eugenol from the oil is obtained by using ten per cent alkali solution and steam distilling the unchanged oil. The yield of crude eugenol is 78 per cent and that of the pure rectified product is 50 per cent, based on the analytical content of eugenol in the essential oil. The yield of camphor is 25.1 to 25.6 per cent. Treating the residual oil with sulfuric acid yields 18.3 to 19.9 per cent of technical camphor. *V. V. Markov. Inst. Efirno-Maslichoni Prom.*

FISH LIVER OIL TASTE

A process for improving the taste, odor, and color of fish liver oils is described in U. S. Patent 2,306,776, assigned to National Oil Products Co. The process employs the mixing of activated carbon with an organic solvent, deaerating the mixture by moderate agitation, adding a fat-soluble, vitamin-containing material, such as crude swordfish liver oil, agitating to effect adsorption of impurities on the carbon, and effecting separation, as by filtration.

PERFUME PRESERVATION

Two patents on the preservation of perfumes and soaps have been granted to Carl N. Anderson and assigned to Lever Brothers. U. S. Patent 2,324,347 on preservation of perfumes claims: "A perfume composition comprising essentially perfume and a relatively small amount of a substantially pure solid compound added thereto for inhibiting undesirable changes in odor and loss of fragrance in perfume, said compound being selected from the group consisting of aliphatic and alicyclic compounds composed of carbon, hydrogen and oxygen and containing an ene-diol group." U. S. Patent 2,324,348 on preservation of soaps and perfumes claims: "In a process for manufacturing perfumed toilet and laundry soaps in solid form, the steps which comprise adding a small amount of pure crystalline ascorbic acid to perfume subject to deterioration by oxidation, and intimately admixing the ascorbic acid treated perfume with a solid soap to be perfumed, whereby the original character of the perfume in the soap is preserved for a long time and the development of undesirable odors in the soap and the perfume is inhibited."

FLORIDA ORANGE OIL

Florida oil of orange meets the U. S. P. XI standards except for the index of refraction for the 10 per cent distillate. Taste tests on Aromatic Elixir U. S. P. XI using Florida oil of orange proved that it was equal or superior to other oils. A method for the determination of wax in the oil, and a method for the preparation of concentrates of the oil are given. P. A. Foote and Robert Z. Gelpi. Scientific Edition J. Amer. Phar. Assn. June, 1943.

PUERTO RICAN ALMOND OIL

Expressed Tropical Almond Oil from Puerto Rico, also known as Talisay oil, is described by Conrado F. Asenjo and Jose A. Goyco in J. of A. C. S. for July, 1943. The oil was expressed from dried kernels with a maximum pressure of 15,000 lb. per square inch, the yield being 35 per cent. Filtration was the only operation for purification. The oil has a faint but agreeable almond taste. Only ripe fruits either yellow or purple according to the degree of ripeness, were collected.

The characteristic of the expressed oil are as follows:

Specific gravity 25°/25°	0.9024
Refractive index 20°	1.4639
Saponification value	187.6
Iodine no. (Hanus)	71.32
Acid value	7.39
Unsaponifiable matter, %	0.65
Unsaturated acids, %(cor.)	52.92
Saturated acids, %(cor.)	40.96
Iodine no. of unsaturated acids (Hanus)	120.70
Reichert-Meissl no.	0.08
Polenske no.	0.12
Acetyl value	4.67
Peroxide no.	0.61

Production Forum

(*Continued from page 75*)

graph (b)(3) allows the inclusion of "maintenance, repairs and operating supplies, minor items of productive capital equipment and minor capital additions or replacements not exceeding $500.00 (excluding cost of labor.)" Under operating supplies, we would probably include such items as punches and dies, wire cloth, label parts, filling machine parts, rubber gloves and other items which are used up in production and yet do not become a part of the product itself. Our industry is placed in this regulation under Schedule 2. Simply stated, this gives us permission to use preference ratings AA-2X whenever necessary to obtain supplies for maintenance, repair and operating, provided we do not allot this symbol for preference ratings on "an aggregate amount exceeding one-fourth of the aggregate amount" spent for such supplies during the calendar year 1942 or the fiscal year ending nearest to December 31, 1942. Herein, however, is a catch for many of us. Because our expenditure for such supplies during 1942 was definitely below normal, with an A 10 P-100 it was practically impossible to obtain supplies, at least such was the case around Detroit. However, the very fact that recognition has been given of the necessity for maintenance, repair and operating supplies and also since the products of our industry have at least been listed under "miscellaneous products," there is still hope.

SEND FOR A COPY

Robinson Manufacturing Co., a bulletin on mixers, mills and other processing equipment.

Kinnear Manufacturing Company, a bulletin on wood slat rolling doors.

Armstrong Machine Works, Three Rivers, Michigan, a bulletin on humidifyers for labeling and paper storage rooms.

Screw Conveyor Corp., Hammond, Indiana, a bulletin on screw conveyors.

Mercer Engineering Co., Clifton, New Jersey, a bulletin on portable elevators, lift trucks, etc.

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Mono-Stearate, Mono-Laurate, Mono-Myristate, Mono-Oleate, Mono-Palm, Mono-Ricinoleate

Methyl–, Ethyl–, Propyl–, Butyl–,
Stearate Laurate Palm Myristate Oleate
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Kesscowax AC (Acid Emulsifier) — Triacetine C.P. — Cycloform (A base for Suntan Preparations)

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PURCHASING DEPARTMENT

JUNE MOVEMENTS

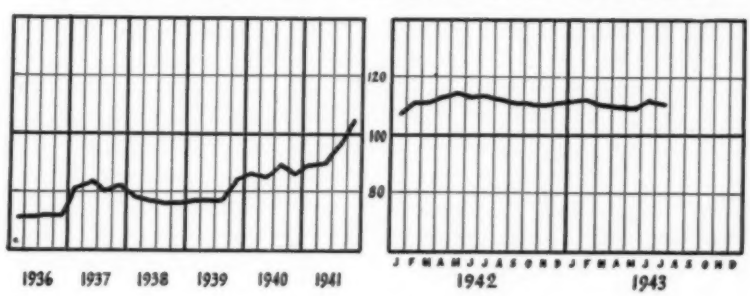
Up

Anise oil 35c	Eucalyptus oil 3c	Pennyroyal oil 10c
Apricot kernel oil 7c	Ginger oil $1	Rhatany root 3c
Balsam Peru 5c	Golden seal root 10c	Stearic acid TP 5/8c
Cade oil 15c	Guaiac gum 5c	Tansy oil 75c
Cubebs oil 25c	Musk ambrette 15c	Tumeric root Aleppy 2c
Digitalis leaves 20c	Origanum oil 55c	Wormwood oil 25c
Elder flowers 8c	Papain pure powd. 50c	

Down

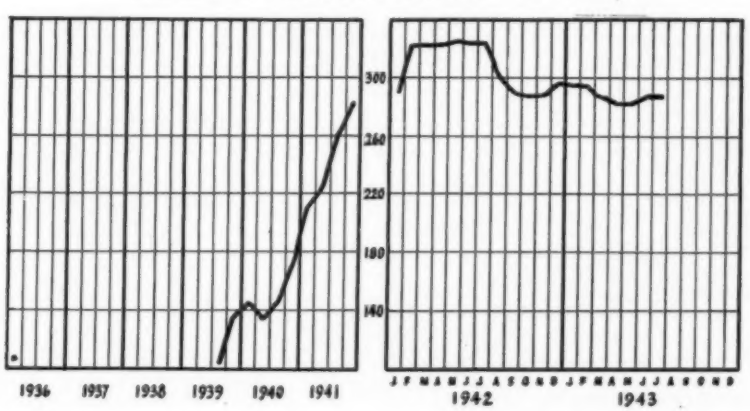
Aconite root 5c	Petit grain oil Sa 5c	Stramonium leaves 2c
Citronellol 25c	Quince seed 35c	Vanilla beans Mex. cuts 25c
Lavender Spike oil 10c	Saffron American 1c	Mex. whole $1.50
Lemon grass oil 15c	Sassafras oil artificial 50c	Ylang Ylang oil Bourbon 50c

25 Cosmetic Raw Materials—Unweighted Price Index. 1926=100.



The cosmetic raw materials index declined to 113.1 from the previous 114.2. This was mainly caused by a drop in the spot market price of quince seed which is now offered at $1.30. Balsam Peru was higher at $1.30 and stearic acid TP rose to 18-5/8 cents. The situation in menthol remained as acute as ever. Brazil is expected to be in a position to ship menthol here beginning in the period December/February next.

15 Botanicals—Weighted Price Index. 1926=100.



The botanicals index advanced fractionally to 289.7 from the previous 289.6. This was occasioned by the rise in digitalis to 65 cents per pound. It was the concensus of spot dealers that never in the history of crude drug production in this country was it so difficult to get goods collected. An extreme shortage of labor in the collecting areas is bound to be felt when manufacturing requirements again become normal.

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GUM GHATTI
GUM ARABIC BLEACHED
GUM TRAGACANTH
GUM KARAYA (Indian)
GUM SHIRAZ
GUM EGYPTIAN
GUM LOCUST (Carob Flour)
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SPECIALTIES:
MENTHOL (Crystals)
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TEA SEED OIL

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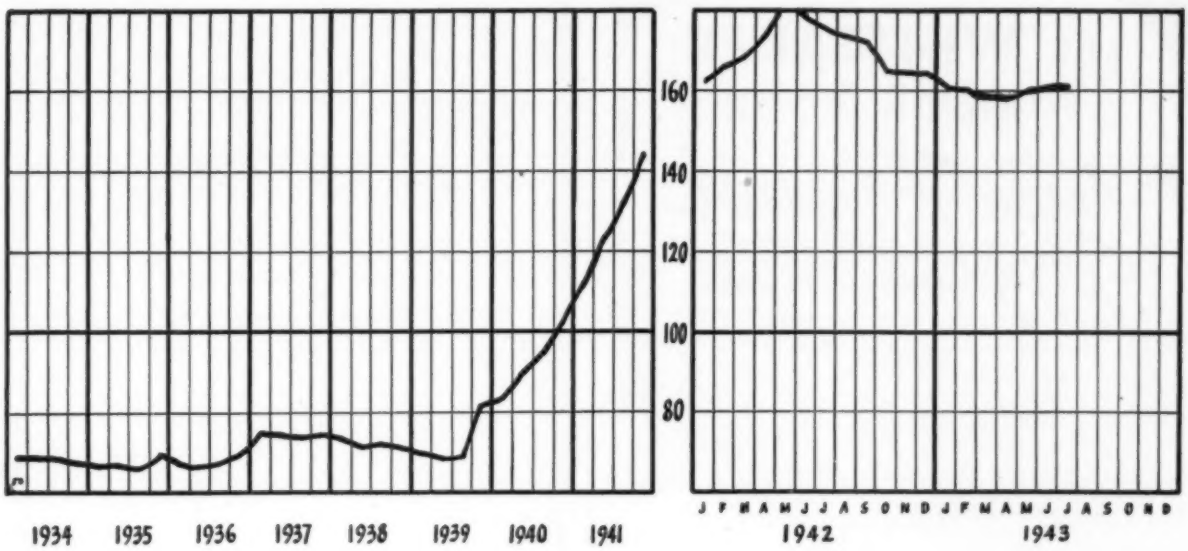
EGG ALBUMEN
EGG YOLK
BLOOD ALBUMEN
JAPAN WAX
CANDELILLA WAX

★

CASEIN

50 Raw Materials—Weighted Price Index. 1926=100



The price index of fifty commodities for June, 1943, advanced fractionally to 160.8 from the previous 160.5. Developments that stemmed from either new or past orders of the OPA or the WPB came to the surface during the trading period under review. Items affected were butyl alcohol and butyl acetate, certain of the glycols, and ethyl alcohol made from grains.

• Prices quoted in this section were current on the first of this month.

VANILLA

Some importers have already renewed import licenses covering about 80 to 100 tons of Bourbon vanilla beans which had been purchased at Madagascar. Every effort had previously been made to secure steamer space to ship these beans before the licenses expired July 1st. Some importers find it hard to explain why there should be so much difficulty in getting these goods out of Madagascar especially since Great Britain has been able to get substantial quantities of certain items out of the island.

Only a few weeks ago, it is said, advices from London indicated there had been an unexpected arrival of a large consignment of clove oil from Madagascar. The report indicated that exports from the island for the year amounting to 450,143 pounds are the largest so far.

Exports of vanilla beans from Tahiti, Society Islands, during the first quarter of 1943 amounted to 24,194 kilograms, almost half of the total quantity shipped in 1942.

The variable export tax on vanilla was fixed at 9.70 francs per kilogram for the first quarter of 1943. This was the lowest rate for more than a year. For the first quarter of 1942 it was 86.10 francs, a rate so high that those who held vanilla for export until the first quarter of this year made considerably more profit than they would have if they had shipped during the December quarter of 1942, despite the fact that the market price was much lower this year. The tax reduction was made because of the lowering of the price.

On spot the market was easier. Bourbons continued to be unchanged in price at from $8.50 to $9.25 per pound but both grades of Mexican beans declined during the trading month under review. Cuts are now offered at from $8.25 to $8.75 per pound and whole beans at from $9.50 to $10. The Mexican situation reflected arrivals from new crop, rather than any slackening in demand.

While the Government has placed a limitation on the quantity of milk solids that can be used in the production of frozen dairy foods, and has limited each ice cream manufacturer to 65 per cent of the quantity that he used in the corresponding month of 1942, it is said that this has not materially affected the consumption of vanilla in the ice cream field. The demand for ice cream is greater than ever before, so that with a curtailed production schedule most manufacturers are limiting the number of flavors offered. Vanilla and chocolate have been, and probably will continue as, the favorite flavors. Demand for vanilla in this field has therefore continued high.

FRENCH OILS

Under the stress of food shortages, the perfumers of Grasse and Nice are devoting all their skill, labor, and machinery to the cultivation and processing of vegetables, says a report in the London press. Carrots, beans, and peas flourish in the Alps Maritimes where more than 1,000 tons of flowers were formerly harvested each year. Instead of gathering orange blossoms and jasmine for perfume essences, cultivators are waiting to pick the ripened fruit for food.

ALLOCATIONS

The following chemicals are under allocation: bismuth chemicals, caffeine USP XII alkaloid, caffeine citrated USP XII, Niacin USP XII, riboflavin USP XII, theobromine alkaloid and all

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A SMALL percentage of Maskol 1216 effectively neutralizes the strong and unpleasant ethereal odor of iso-propyl alcohol.

Sample on application

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IMPORT — EXPORT

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theobromine chemicals, thiamine hydrochloride USP XII.

Manufacturing consumers may accept 25 pounds of any bismuth chemical in any calendar month without making formal application.

Only 2 pounds of caffeine USP XII alkaloid or any caffeine salts may be obtained during any calendar month unless application is made to the W.P.B. on PD-600.

Suppliers may furnish up to and including 5 ounces of Niacin, but it is necessary that certification be made to the effect that receipts from all sources of supply during the calendar month in which order is placed will not exceed this amount. For quantities over 5 ounces formal application must be made.

Only 5 grams of riboflavin may be obtained during the calendar month, and the same conditions as in the above paragraph prevail.

Theobromine—the same regulations apply as to caffeine, as both theobromine and caffeine are governed by Conservation Order M-222.

Thiamine hydrochloride—obtainable up to 25 grams during any calendar month. A certification in substantially the same form as given for Niacin must be submitted on your order.

ALCOHOL

The revolutionary new alcohol disdilling process that will yield a billion pounds of practically pure protein a year as a by-product and that will save the Government $50,000,000 annually in war alcohol costs, was put into commercial operation at the Park & Tilford Distillery in Midway, Kentucky, according to an announcement by that company.

The new alcohol method, requiring little additional equipment, will be in operation at all five of the company's distilleries within a month. The plants, formerly devoted to making whiskey and other beverage spirits, have been for some time distilling alcohol for the Government. The alcohol is used to make smokeless powder, synthetic rubber, chemical warfare materials and medical supplies.

Speedy adoption of the process by the entire alcohol industry was forecast.

The new alcohol-making method was discovered recently by Dr. A. K. Balls, chief, and Irvin W. Tucker, assistant chemist, of the U. S. Department of Agriculture's enzyme research laboratory. The discovery was made at the Brownsville, Pa. distillery of Park & Tilford after its facilities were loaned to the Government for the purpose and then developed to commercial scale by the company.

Because the process affects the war effort in important respects and because it presents a number of possibilities for post-war development, it has attracted widespread interest in both governmental and industrial circles.

Since the protein by-product can be sold very cheaply, it offers limitless nutriative possibilities. It can be used to enrich white flour for bread and cereals, thus making up for the protein loss resulting from the milling process.

The new process, in addition, will result in a 50 per cent cut in grain alcohol costs, with significant effects upon a variety of interests. The cost reduction will make grain alcohol as cheap to produce as molasses and synthetic alcohol. This, in turn, will enable grain alcohol to be produced on a large scale for synthetic rubber, motor fuel and other industrial products—thus opening up a vast new market for grains.

The process bids fair to revolutionize the alcohol industry, reducing its main product, alcohol, to the level of a by-product, it was said.

QUININE

The consumption of quinine is reported as enormous, notwithstanding the wide use of such substitutes as atabrin and plasmochin. Although the Medical Corps of the United States army in the field has improved brilliantly and to a high point of effectiveness the technique of using the substitutes, every effort is being made to augment the supply of quinine.

Cinchona tree seeds snatched from under the noses of the Japanese in the Philippines after the fall of Bataan provide the foundation for development of the quinine industry in the Western Hemisphere.

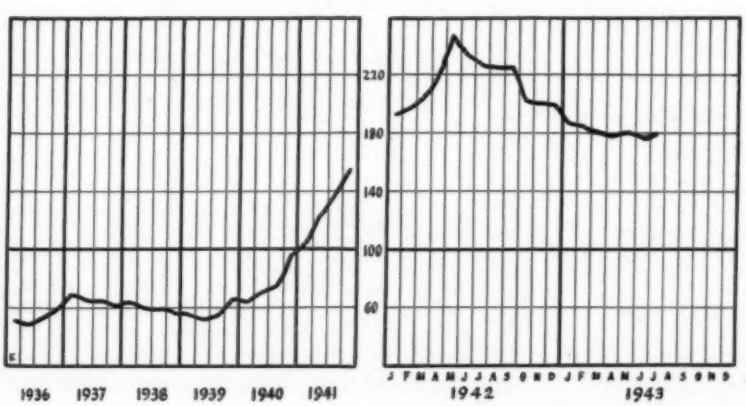
Colonel Arthur F. Fischer, who spent many years in the Philippines raising the cinchona tree, making quinine, and fighting malaria, brought 2,000,000 seeds back to the United States after his escape by plane from Mindanao.

More than 100,000 seedlings, carefully nurtured by the Department of Agriculture in its experimental greenhouses, are ready for transplanting to Costa Rica.

Representatives of Costa Rica and the United States have entered into an agreement under which 10,000 acres of the trees will be planted. A mission soon will leave for Costa Rica to select sites for the large-scale growing program.

It is also reported that twenty new agricultural cooperative organizations have been established within four months in the Province of Huanuco, Peru, and that these new cooperatives will give special attention to the culti-

15 Essential Oils—Weighted Price Index. 1926=100.



The essential oil index advanced slightly to 186.7 from the previous 185.9. Anise oil rose from $3.25 to $3.60 per pound. Eucalyptus was also higher by 2 cents at the $1.05 level. The spot supply position of eucalyptus oil is steadily becoming more serious. It is said that Australia is not selling us now, but is witholding this oil for its own antiseptic requirements.

Your Bergamot problem will be solved by using

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vation of cinchona bark for quinine. During the past twelve months some forty-five agricultural cooperatives have been established in Peru with a total membership of 4,600 farmers. Peru's Indian population, which in the past has been considered unresponsive and difficult to reach, has shown unusual enthusiasm for the cooperative movement toward an increased production of quinine. It is anticipated that in addition to quinine production for home consumption, Peru will also provide a promising product for the export trade.

ORANGE OIL

The war has dealt a severe blow to Brazil's orange industry, particularly to the formerly large export trade. Exports attained a peak of 5,631,943 boxes in 1939, but dropped to 1,281,423 boxes in 1942. Prior to the present world conflict, European markets purchased from 3,500,000 to 4,000,000 boxes of Brazilian oranges annually, the English market alone importing between 2,000,000 and 2,500,000 boxes.

The first step taken by the Brazilian Government to assist the industry was to promote domestic consumption of the fruit by reducing freight rates. Another method of increasing domestic utilization of oranges has been the production of orange oil. This method has been attempted principally in the State of Sao Paulo, since growers there have been more adversely affected by curtailment of export markets than have producers in the Rio de Janeiro district. In 1939, Sao Paulo exported 2,394,393 boxes of oranges, and in 1942 its exports were down to 171,603 boxes.

There are reportedly 150 plants in Sao Paulo manufacturing orange oil, and 15 in the State of Rio de Janeiro and the Federal District. Estimates indicate that about 4,500,000 boxes of oranges were used for orange oil in 1942 with orange oil production at 580,000 pounds.

The medicinal chemicals index continued without change at 126.3. The OPA on June 29 stated that arrangements have been made to hold the existing price ceilings on sales of ethyl alcohol for essential civilian uses, and to protect the present ceilings on hundreds of military and civilian items in which alcohol is a basic raw material, notwithstanding the increased costs of corn and wheat used to make grain ethyl alcohol.

PEPPERMINT

The annual pre-distillation season survey of the peppermint prospects, issued June 17 by the Department of Agriculture, recorded the 1943 total planting as 37,940 acres. This compared with 41,195 acres planted in 1942. The survey covers plantings in Indiana, Michigan, Ohio, California, Oregon, and Washington states. Indiana and Michigan, the principal producing states, cultivated less peppermint this year, as also did Washington and Oregon. Ohio acreage was unchanged and that in California was increased by 190 acres. The total of old beds cultivated in the six states was 30,010 acres and new beds cultivated for the first time totaled 7,930 acres. Detailed figures follow:

	Acres	
	1943	*1942*
Indiana	14,800	16,300
Michigan	14,800	17,400
Ohio	130	130
California	710	765
Oregon	3,900	3,600
Washington	3,600	3,000
Total	37,940	41,195

The total spearmint under cultivation was 7,930 acres as against 7,765 acres in 1942. A notable fact was the decrease in spearmint plantings in California from 165 acres in 1942 to 30 acres in 1943. Indiana is cultivating 300 acres more this year, the total being 5,500 acres; Michigan stood pat at 2,400 acres.

GLYCERIN

Restrictions on the use of glycerin have caused consumption to fall below production, and in view of reports reaching here from Canada indicating that that country may be in a position to export this material to the United States, the situation as a whole displays an easier tone.

Although there has been no change in restrictions covering the use of glycerin here, it is indicated that those consumers who have been receiving material under allocation and have a thirty-day supply on hand, may also take delivery of their July requirements. Thus it is now possible that the Food Distribution Administration will allow consumers a sixty-day supply instead of the usual thirty-day or six weeks' supply.

In 1942 the United States exported approximately 8,000,000 pounds of glycerin to Canada. In view of the latest reports reaching here, it now appears that Canada, having supplied Great Britain with virtually all of its needs for the manufacture of cordite, will be in a position to export material here to the extent of close to the 8,000,000 pounds that were imported in 1942.

CASTOR SEEDS

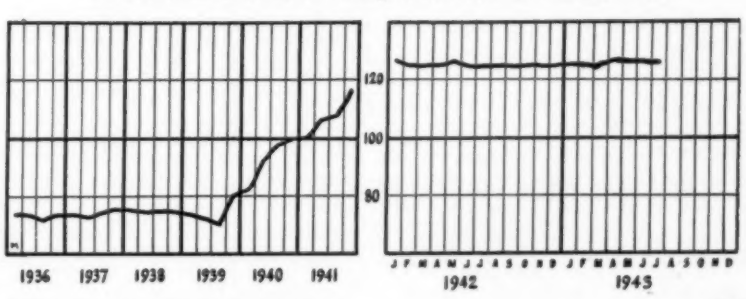
Production of castor seeds offers another prospect for Mexico's growing export of strategic materials to the United States by land transport.

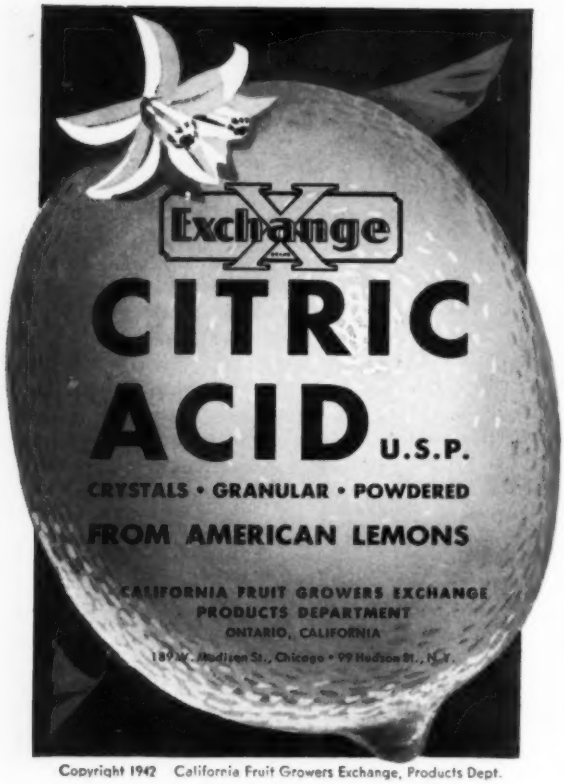
An arrangement by the Commodity Credit Corporation to purchase 225,000 long tons of Mexican castor seed during the 2 year period beginning April 30 is expected to stimulate Mexican castor seed production. This contract calls for purchase of up to 75,000 tons during the first year and 150,000 tons during the second year at a price of $75 a ton, on board Mexican rail cars at the Mexican border.

GUM ARABIC

The long overdue ship arrived from Egypt and brought 2,805 bags of gum into this market. It went to regular dealers operating on a quota basis. It was believed that it has been fairly well sold ahead. The market was lower at 17c to 17½c per pound, but it was the result of a falling off in speculative activity and not caused by the arrival of the shipment which took three months to get there.

15 Medicinal Chemicals—Weighted Price Index 1926=100





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Abrasion of Teeth

(*Continued from page 81*)

change with age. The patient who uses a tooth brush vigorously will increase the rapidity and degree of recession, with resultant exposure of the thin cementum covering the root surface beneath the cemento-enamel junction. The mechanical action of the tooth brush with or without a dentifrice across this exposed area may cut a wedge-shaped groove through the cementum and dentin in those areas most accessible to the tooth brush, particularly where the brush is driest, the dentifrice most concentrated and the maximum application of pressure possible. It is very infrequent that a condition of tooth brush and dentifrice abrasion can be found on any other surface of teeth than the labial or buccal, or, in a sense, the cosmetic surfaces. Only in mouths reflecting good home care are abrasion and early recession marked. However, the problem is not so much what should be used on the tooth brush as how it should be manipulated.

Too much emphasis is placed on the importance of dentifrices in oral prophylaxis. Some persons lose sight of the fact that dentifrices are mainly of cosmetic value or an adjuvant to the tooth brush. The soap or alkyl sulfates have some specific value in that they aid in removal of debris by wetting and by lowering surface tension. A tooth brush correctly designed as to size and shape of the brush head, texture and arrangement of the bristles and length and rigidity of the handle is still more important. But the most important ingredient in oral hygiene is "time."

The dentist must be interested in teaching and willing to teach the patient, whether child or adult, to use a tooth brush for maximum effect and a minimum of traumatic and abrasive injury. Briefly, this implies a method of vertical brushing starting on the gingiva, using the sides of the bristles with the ends pointed toward the apex of the tooth and the movement of the brush in a sweeping motion toward the occlusal surface without rotating the brush head or using the ends of the bristles. By such a brushing technic, the chance of causing abrasion, regardless of the dentifrice used, will be reduced to negligible proportions.

Conclusions

1. A number of commercial powders, pastes and liquid dentifrices have been tested as to their abrasive action on human teeth under standardized conditions using motor-driven brushes. A specially selected precipitated calcium carbonate U.S.P. was used as a standard of reference for comparison with the commercial products.

2. The least abrasive pastes and powders were about one-half as abrasive as the control calcium carbonate, and the most abrasive were about twice as abrasive as the control.

3. It is probable that the sixty commercial products tested were all satisfactory as to the degree of abrasion produced, inasmuch as evidence as to the permissible

degrees of abrasive power in such products is not thus far available.

4. When the tooth brush moistened with equal parts of water and glycerine was used alone the abrasion was reduced to about two-thirds of that caused by brushing with calcium carbonate powder moistened with the same liquid.

5. Five liquid dentifrices caused very little abrasion, ranging down to as low as one-sixth of the control calcium carbonate. Since this was less than that produced by the brush alone when wet with glycerine, the diminished abrasion resulted from lubrication by the sulfonated detergent and gums used as substitutes for soap in these liquid preparations.

6. That the sulfonated detergents possess a high lubricating power was shown by adding sodium alkyl sulfate to a slurry of the control calcium carbonate powder in glycerine and water; the abrasion diminishing to about one-half that from the calcium carbonate without the alkyl sulfate.

7. One of the semiliquid dentifrices was as abrasive for the teeth as the control calcium carbonate powder and, in addition, produced a bright luster of the metal plates through direct chemical action. Presumably this preparation contained ingredients not present in the other liquid products tested.

8. Household brands of table salt and baking soda possess abrasion efficiency indistinguishable from that of the specially formulated dentifrices, this fact giving support to previous claims that these simple materials may serve quite adequately as economical dentifrices.

9. No answer can be given at this time to the question of the ideal degree of abrasion required for dentifrice preparations. The liquids clearly cause less abrasion than the powders or pastes, but, in many persons, these products apparently fail to abrade sufficiently for proper cleansing. There appears to be no choice between pastes and powders as to the degrees of abrasion produced, since, in general, these have the same range of abrasiveness. However, there are wide differences between the most and the least abrasive pastes and powders, so that, if the teeth are not adequately cleaned by one product, a more abrasive one may be selected. The most abrasive pastes and powders are approximately four times as abrasive as the least effective, so that a wide range is available for selection. Since the least abrasive solid preparations have substantially the same abrasive power as most of the liquid dentifrices, if minimal abrasive effect is desired a properly selected paste or powder can be used with as great a degree of safety as most liquid dentifrices.

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Oil of Coriander

(*Continued from page 35*)

been reported in the United States, and some reports of yields over 2,000 pounds have come from foreign countries. These maximum yields could hardly be expected for our country, except where ideal conditions for growth exist and with every effort being made, by the use of hand labor, to prevent any loss through seed shattering.

CONSIDERATION OF DOMESTIC PRODUCTION

Crooks and Sievers[8] raise some interesting points for and against the production of coriander seed in the United States.

The favorable aspects may be enumerated as follows:

1. An acreage of considerable significance to irrigated sections might be developed. On the basis of imports coming to this country and the possible yields, 4,500 acres would be needed to produce domestic requirements.
2. The short time required for growing and maturing the crop makes possible the production of seed while prices are favorable.
3. No special machinery, except that required on the average small grain farm, would be necessary for planting, cultivating, or harvesting this crop. Therefore, it seems possible to shift to coriander for a short period and discontinue growing it when market conditions become unfavorable, without loss due to investments in special machinery.

The following uncertain factors and limiting aspects must also be considered:

1. With a price in the past as low as 3 cents a pound and the average pre-war price not more than 5 cents, it appears that this crop offers possibilities only when the seed cannot be imported. Considering the average yield of 600 pounds per acre, a gross income of approximately $24.00 might be expected in normal times. Even though it were possible to increase the yield two or three times in irrigated sections, there is much doubt that the crop would be profitable.
2. The probability of unfavorable weather, such as rain or wind occurring during the harvest period, presents a considerable hazard in many sections of our country.
3. Coriander is grown in several regions of the world, and new sources are likely to develop as a result of the present high prices.

DISTILLATION OF CORIANDER SEED

The seed must be crushed and charged into the still immediately in order to prevent loss of oil by evaporation. As with all seed material, it is important that coriander seed be distributed evenly in the still; otherwise the steam forms channels and escapes without being saturated with oil vapors. The yield, in this case,

would evidently be very inferior. Whole seed requires a considerably longer distillation time (almost thirteen hours instead of nine and one-half hours) and, in addition, gives a slightly lower yield of oil. Best distillation material is the Central European and Russian seed or American grown seed of the Central European or Russian type. It yields from 0.5 to 1.1 per cent, on an average 0.6 per cent of oil. The content of oil seems to depend a good deal upon the locality, the soil, and the weather conditions prevailing during growth and harvest. The large sized Moroccan seed, considerable quantities of which have reached this country, yields only 0.15 to 0.30 per cent of oil and is, therefore, not suited for distillation. The same is true of East Indian seed.

Increasing the steam pressure by about 33 per cent, Leikin[9] succeeded in reducing the length of distillation to six hours without impairing the quality of the oil.

The exhausted seed material may be dried and employed as cattle fodder; it contains 11 to 17 per cent proteins and 11 to 21 per cent fatty matter.

PHYSICO-CHEMICAL CONSTANTS OF CORIANDER SEED OIL

According to Gildemeister and Hoffmann,[10] the constants of coriander seed oil vary between the following limits:

Specific Gravity at 15 °C.	0.870 to 0.885; usually not higher than 0.878.
Optical Rotation	+8° to +13°
Refractive Index at 20 °C.	1.463 to 1.471
Acid Value	Up to 5
Ester Value	3 to 22.7
Solubility at 20 °C.	Soluble in 2 to 3 volumes of 70% alcohol.

The United States Pharmacopoeia, Twelfth Revision, gives the following specifications for coriander oil:

Specific Gravity at 25 °C.	0.863 to 0.875
Optical Rotation at 25 °C.	+8° to +15°
Refractive Index at 20 °C.	1.4620 to 1.4720
Solubility	Soluble in 3 volumes of 70% alcohol.

The oil must meet the requirements of the USP test for heavy metals in volatile oils.

Genuine oils which we imported during past years from Hungary and especially Russia showed constants varying between the following limits:

Constants	*Russian Oils*	*Hungarian Oils*
Specific Gravity at 25 °C.	0.8615 to 0.8750	0.8640 to 0.8650
Optical Rotation	+9°30′ to +11°7′	+10°15′ to +11°30′
Refractive Index at 20 °C.	1.4632 to 1.4690	1.4636 to 1.4645
Saponification Value	2.8 to 7.5	10.3 to 10.8
Solubility at 25 °C.	Soluble in 2 to 2.5 volumes and more of 70% alcohol	Soluble in 2 to 3 volumes and more of 70% alcohol

The odor and flavor of these oils was fine and pronounced.

The linalool content, as determined on some lots, varied from 64 to 72.4 per cent.

In view of the fact that the specific gravity of some of the Russian oils falls below the limits permitted by

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the U. S. P. XII, it seems advisable to alter the specifications of the present U.S.P. from 0.863—0.875 to 0.860—0.875.

Oils distilled in Fremont (Ohio) and in our Clifton (New Jersey) factory from domestic seed material had the following properties:

Specific Gravity at 25 °C.	0.863 to 0.866
Optical Rotation	+9°40′ to +10°20′
Refractive Index at 20 °C.	1.4634 to 1.4638
Saponification Value	6.4 to 19.6
Solubility at 25 °C.	Soluble in 2 to 2.5 volumes and more of 70% alcohol.

The oils had normal properties. Their odor and flavor, however, were not quite as pronounced and fine as the odor and flavor of Russian or Hungarian oils.

Two oils distilled in our French (Seillans, Var) factory from imported Moroccan and Yugoslavian seed showed the following constants:

	Moroccan Seed	*Yugoslavian Seed*
Specific Gravity at 25 °C.	0.868	0.866
Optical Rotation	+8°48′	+10°15′
Refractive Index at 20 °C.	1.4632	1.4637
Saponification Value	29.3	18.6
Solubility at 25 °C.	Soluble in 2 to 2.5 volumes and more of 70% alcohol.	Soluble in 2.5 volumes and more of 70% alcohol.

The oils had normal properties. Odor and flavor of the oil distilled from the Yugoslavian seed were excellent and somewhat finer than those of oil from the Moroccan seed.

Authentic coriander oils distilled by Althausen, Boruff and collaborators[11] from seed of different origin showed the following physico-chemical properties:

According to Spiridonova,[12] the physico-chemical constants of coriander oil undergo considerable changes during the successive stages of growth from flowering to full fruit maturtity. A definite relation exists between the constants (and therefore chemical composition) of the oil and the vegetation stages, as well as the plant parts The oil yield, at the maximum during the defloration and milky-fruit stages, gradually decreases with the ripening of the fruits. The density increases gradually from 0.83 to 0.86, evidently in relation to the increasing content of oxidation products in the oil. The specific rotation, very small (0 to 1.73°) during florescence, increases sharply at the defloration stage and then rises very slowly until the end of the fruit ripening. This feeble accumulation of d-linalool in the oil during ripening of fruits shows that the complete maturity of coriander is attained before its physiological ripeness. Refractive index increases through all the stages of growth; this is connected with the increasing density of the oil. The ester value shows a decrease of alcohol groups from the flowering to the ripening stages of the plant. It seems this does not take place at the expense of linalool, because the specific rotation constantly rises with the growth. A rearrangement of alcohols resulting in greater linalool contents is possible. Since stalks and leaves give considerable oil (0.95 per cent), the entire plant can be used for the extraction.

(In this connection see also the distillation experiments with coriander at different stages of plant maturity, as described by Gildemeister and Hoffmann.[13])

On the findings of Spiridonova,[14] we would like to comment that from our own experience, oils distilled from the overground parts of coriander, including unripened seed, have a very peculiar, rather disagreeable odor totally different from that of seed oil. It is absolutely impossible to substitute seed oil with leaf oil in any flavor, perfume, or pharmaceutical formula. The leaf or herb oil has a pronounced odor of decylic aldehyde or other higher fatty aldehydes; in fact, the leaf oil contains so large an amount of higher aldehydes that it might almost be considered as a source of these compounds, should price of the oil permit. Two such oils, distilled in Fremont, Ohio, and Geneva, Indiana, during 1942 and analyzed in our laboratories, had the following constants:

	Ohio Oil	*Indiana Oil*
Specific Gravity at 25 °C.	0.849	0.849
Optical Rotation	+3°25′	+2°1′
Refractive Index at 20 °C.	1.4540	1.4548
Saponification Value	22.8	50.1
Aldehyde Content calculated as Decylic Aldehyde (Hydroxylamine Method)	65.5%	72.0%
Solubility at 25 °C.	Soluble in 3.5 volumes of 70% alcohol, opalescent in 10 volumes.	Soluble in 1 to 1.5 volumes and more of 80% alcohol.

CHEMICAL COMPOSITION OF CORIANDER SEED OIL

The first investigations of coriander seed oil date back to the middle of the last century when Kawalier[15] isolated the main constituent, a compound of the empirical molecular formula $C_{10}H_{18}O$. Grosser[16] identified it as an alcohol. Semmler[17] found that the compound consisted of an olefinic chain and named it coriandrol. Barbier[18] showed that coriandrol and linalool were identical chemically as well as physically, except for the opposite optical rotation. Coriandrol is, therefore, nothing else but d-linalool.

Walbaum and Mueller[19] submitted coriander seed oil to a closer investigation and proved that it contained from 60 to 70 per cent linalool, furthermore about 20 per cent hydrocarbons. The same authors[20] established the presence of the following constituents in coriander seed oil:

d-α-pinene	M.p. of d-pinonic acid, 68.5° to 70 °C.; $[\alpha]_D$, +89.40°.
dl-α-pinene	M.p. of nitrolbenzylamine, 123° to 124 °C.; m.p. of dl-pinonic acid, 104° to 105 °C.
β-pinene	Oxidation with $KMnO_4$ yields nopinic acid, m.p. 125° to 127 °C.
phellandrene, *terpinolene*	Presence probable, but not definitely proven.
p-cymene	Oxidation with $KMnO_4$ yields p-hydroxy isopropyl benzoic acid, m.p. 155° to 156 °C.
dipentene	Present only in very small quantities; m.p. of tetrabromide, 123° to 124 °C.

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α-terpinene and γ-terpinene	Oxidation of the fraction 179° to 180°C. with nitrous acid yields terpinene nitrosite, m.p. 154° to 155°C.
	The same oil fraction, when treated with gaseous HCl, yields ample quantities of terpinene dihydrochloride, m.p. 51° to 52°C., m.p. of dihydrobromide, 58.5° to 59.9°C. When treated with alkali, according to Wallach,[21] the dihydrochloride is transformed into terpinenol.
	Oxidation of the terpinene fraction with a dilute $KMnO_4$ solution gives erythrol, m.p. 235° to 236°C., a derivative of *γ*-terpinene, according to Wallach,[22] and furthermore inactive *ad*-dihydroxy-*α*-methyl-*d*-isopropyl adipic acid, m.p. 189°C., a derivative of *α*-terpinene.
	Thus, the two isomerides of terpinene occur in coriander seed oil. Formerly "terpinene" had been considered homogeneous.

Aside from these hydrocarbons which amount to about 20 per cent of the oil, coriander seed oil contains the following oxygenated compounds:

d-linalool	Sixty to 70 per cent of the oil consists of this terpene alcohol.
n-decylic aldehyde	M.p. of the semicarbazone, 102°C. Oxidation of the aldehyde gives decylic acid.
other *aldehydes*	Several other aldehydes of rather unstable character also seem to be present in the oil.
geraniol	Isolated as calcium chloride compound in its pure form: b.p. 231° to 232°C.; $d_{13}°$ 0.881; α_D ±0°; m.p. of the diphenyl urethane, 80° to 81°C.
l-borneol	It is slightly laevo-rotatory; m.p. of the hexagonal plates crystallized from petroleum ether solutions, 204°C. Oxidation yields camphor. M.p. of the oxime, 118°C.
acetic acid and traces of *decylic acid*	These acids were isolated from the saponification lye of the ester fractions.

CHEMICAL COMPOSITION OF CORIANDER HERB OIL

The chemical composition of coriander herb oil is quite different from that of the seed oil. Carlblom[23] distilled the green herb of blooming coriander (*Coriandrum sativum* L.) in the district of Saratow (Russia) and obtained 0.1 per cent of an oil which consisted almost entirely of aldehydes. The constants read as follows:

$d_{20}^{20}°$	0.8524
α_D	+2.55°
$n_{D20°}$	1.4555
Acid Value	1.85
Aldehyde Content (Hydroxylamine Method)	95%
Solubility	Insoluble in 70% alcohol.

The oil consisted mainly of a mixture of aldehydes:

n-decylic aldehyde	About 10 per cent.
decene-2-al-(1) and *methyl-8-nonene-2-al-*(1)	These two aldehydes represent isomers of decylenic aldehyde.

The oil furthermore contained:

myrcene	Carlblom[24] suggests that myrcene plays an important part in the formation of linalool as the plant matures from the blooming to the seeding stage. He disclaims any genetic rela-

tionship between the aldehydes, as present in the blooming herb, and linalool, the main constituent of the seed oil.

APPLICATION OF CORIANDER SEED OIL

Like the seed, coriander oil is used widely in gin essences, for flavoring canned soups and foods, in spicy sauces, baked goods and confectionery; furthermore in pharmaceutical and semi-pharmaceutical preparations for covering any disagreeable odor and taste.

Oil of coriander seed is a valuable ingredient in perfumes; its soft, pleasant, slightly spicy note blends into scents of oriental character. It harmonizes well with jasmine, imparting life and lift to otherwise dull or too synthetic compositions.

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Contraceptive Preparations

(Continued from page 33)

focused on the procedure devised by Brown and Gamble.[21] Their test method has been usefully employed to compare the spermicidal efficacy of contraceptive jellies, creams and pastes; the efficacy of the preparation being judged on the basis of their relative spermicidal times.

In preparing a contraceptive product, the first requisite is that it be effective in preventing fertilization, without causing tissue injury.[22] This brings up the question of the safety and efficacy of the chemical spermatocide and its vehicle or method of use. Leaving aside for the moment the chemical aspect of the problem, one may turn to the important considerations in the choice of a suitable method. The variable factors that enter into this part of the picture have been summarized by Voge[15] as follows: Foam tablets are dependent upon time, moisture and pressure; suppositories upon time and temperature; while jellies are independent of time, temperature or moisture.

From this it appears evident that jellies offer the most promising method of contraceptive administration. As a matter of fact jellies are the most extensively employed form of administration of contraceptives.ss especially when used in conjunction with a diaphragm. The relative efficacy of this combination has been con-

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firmed repeatedly in clinical studies. The jellies used must be water-soluble. Hence preparations containing petrolatum or cocoa butter are unsuitable not only from the standpoint of solubility but also from the possibility of causing deteriorations when used in conjunction with rubber pessaries and the like. This last is an important consideration since jellies are most generally prescribed as an additional precaution and lubricant to be used in conjunction with these mechanical protective devices. However, it should be mentioned that these jellies are often used alone as the sole contraceptive measure; being inserted into the vaginal canal by means of a special nozzle.[23, 24]

Contraceptive jellies are prepared by incorporating chemical ingredients in a semi-solid gelatinous base and acts both as a chemical spermicide and as a mechanical barrier. Formerly glycerite of starch was the most commonly used jelly base and it still enjoys a high degree of popularity. Moreover it has the unique advantage of being quite spermicidal in itself. However, the high glycerin content often proves irritation. Hence the proportion of glycerin is frequently reduced. Vegetable gum jelly bases, containing various natural gums, glycerin and water are finding increasing use. An invert sugar base has also been used in making such jellies.[8]

A wide choice of spermatocidal agents is available for inclusion in these several bases. Of these, the most commonly used, the cheapest, most effective and safest are the acids, such as lactic acid, one to two per cent; acetic acid, one per cent; citric acid, one per cent; and, boric acid, five per cent. According to Goodman and Gilman,[16] who are responsible for the above proportions, a satisfactory contraceptive jelly can be made by incorporating lactic acid, two per cent and boric acid, four per cent, in glycerite of starch.

Aluminum salts are also commonly used as spermatocides; potassium aluminum sulfate being the salt usually employed. However, it may cause drying and hardening of the mucous membranes. Although paraldehyde and paraformaldehyde have also been used on occasion, their danger of causing tissue damage makes their employment infrequent. Oxyquinoline sulfate has been used extensively and has gained a wide, though perhaps undeserved, reputation as a spermatocide. High concentrations of this drug must be avoided because of the danger of toxic systemic absorption. Quinine finds but little use today because effective quantities of this drug may enter the danger range. Hexylresorcinol is considered to be an effective and harmless contraceptive in 0.03 per cent concentration in a jelly base.[16]

Space prohibits more detailed discussion of suitable, jelly-base chemicals, but those who wish more complete data on these and other spermatocidal chemicals are referred to the standard texts of Dickenson[8] and of Voge.[15]

Back in 1938, Dickenson commented on the quite considerable difficulty of obtaining formulas of com-

mercial preparations. The situation has since been partially remedied both as a result of some manufacturers' cooperation with research workers and through chemical analyses. Therefore detailed formula information on a variety of commercial contraceptive jellies can be obtained by checking the published reports of Brown and Gamble[21] and of Shedlovsky and Bodner[25] as well as other sources which occasionally reproduce the formula of individual manufacturers.

In passing it should be mentioned that the A.M.A. will probably refuse to recognize contraceptive preparations unless the formulas are available to physicians. Dickenson's view, one reflecting the attitude of the several organizations with which he is associated, is summed up in the statement that "The physician should refuse to prescribe preparations unless he is possessed of a complete statement of composition."

However, there is no great difficulty in obtaining typical formulas of contraceptive jellies, since several such have been published in the literature.[8, 14, 26] Fantus,[27] for example, suggests the use of a jelly composed of lactic acid, 2 per cent and oxyquinoline sulfate, 0.05 per cent in a tragacanth base for use in conjunction with a pessary. Bliss[28] has also listed several suitable jelly formulas of which the following is an illustrative example:

Lactic acid (85)%	13 parts
Tragacanth	80 "
Boric acid	55 "
Glycerine	60 "
Distilled water	1200 "

Older formulas, containing quinine, mercury salts or other deleterious drugs are best disregarded. It should also be observed that standard water-soluble surgical lubricating jellies, such as those used on instruments and catheters, can serve a similar purpose for pesseries. By the incorporation of a suitable proportion of a spermatocidal agent such jellies can be given an added contraceptive value.

A few manufacturers put out contraceptive creams for use instead of jellies. Probably more elegant esthetically, these are generally stearic acid creams, familiar to cosmetic formulation, modified to meet the needs of the vaginal canal. Gorrell[22] criticizes creams on the basis of their marked variation in formulas and hence in results.

The suppository falls next in order as a frequently employed contraceptive method providing both a chemical and mechanical barrier to spermatozoa. These consist of some spermicidal agent incorporated in a semi-solid base that melts at body temperature when inserted into the vagina. Suppositories have the advantage of being convenient to use, compact and easily transported, requiring no apparatus and of being fairly effective when properly placed. Conversely they have been criticized on the basis of their variable melting time, their greasy, lubricating effect, and the

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difficulty of accurate placement for optimal protection. Hudgins[23] considers suppositories only 40 per cent effective while Gorrell[22] classes them as unreliable.

Classified according to the vehicle, suppositories are grouped into three types, the cocoa butter, the glycero-gelatin and the soap suppository. The first two types are most generally used. Cocoa butter is frequently used, because it melts at body temperature. However, it does not permit the incorporation of water-soluble spermatocides nor does it mix with the vaginal secretions.[16] According to Dickenson, boric acid, quinine derivatives and salicylic acid are the most common ingredients of cocoa butter suppositories, but a quite long list of other chemicals have also been employed. A typical product of this type, listed by this authority, is as follows:

Aluminum aceto-tartrate	0.5 per cent by weight
Boric acid	10.0 " " " "
Quinine sulfate	0.3 " " " "
Oxyquinoline sulfate	1.0 " " " "
Cocoa butter	q.s. " " " "

Glycero-gelatin bases overcome some of the disadvantages of the cocoa butter bases, but have in themselves the disadvantage of lacking a sharply defined melting point. A simple preparation of this type consists of:[8]

Acetic acid	1.0 per cent by weight
Lactic acid	0.9 " " " "
Glycero-gelatin base	q.s.

Foaming or effervescent tablets generally consist of a spermatocide incorporated in an effervescent mixture such as tartaric acid and sodium bicarbonate. When inserted into the vagina, the moisture present causes the evolution of carbon dioxide foam to provide a mechanical and chemical barrier. Since moisture is a prime requisite, such tablets often fail to do their job and foam tablets are therefore not too reliable.[22] Boric acid and oxyquinoline sulfate are usually used as the effective drugs; the tablets weighing from 0.3 to 1.0 Gram.[16] Prevention of deterioration is an important factor in the manufacture and distribution of such products, which appear to be but little used.

A distinct advance over these effervescent preparations are the so-called "foaming powders" which depend for their action upon a foaming agent such as sodium lauryl sulfate. Several such detergents or foaming agents are available commercially. These powders, generally a combination of starch, foaming agent and paraformaldehyde, are used in conjunction with a rubber, cellulose or natural sponge. The user sprinkles a little of the powder on a wet sponge and works up the foam with her fingers and inserts the sponge into the vagina. Here the sponge acts as a reservoir for the stable, occlusive foam.[8]

This procedure is inexpensive, readily taught and easily used. Hence it finds fairly wide use where the economic status is a considerable factor. When properly

and consistently used, the foam-sponge method offers a reasonably high degree of contraceptive protection.[13, 22, 29]

Dry powders, acting as vehicles for spermatocidal drugs, to be blown into the vaginal canal by means of a special insufflator or atomizer, find some use as contraceptive agents. Their chief disadvantages lie in the use of the special blower, the difficulty of adequate placement and spread, and dependence upon vaginal secretions, which may be scanty. Dry ingredients in a state of fine division are employed. The vehicle may be starch or powdered gum arabic and the drugs may include boric acid, tannic acid, alum, zinc salts and quinine. An example of such a powder, given by Goodman and Gilman,[16] is as follows:

Tannic acid	4 per cent
Boric acid	8 " "
Gum arabic	20 " "
Starch	68 " "

Douches rank very low on the scale of contraceptive procedures. Although it is a simple measure and widely used, it is hardly one to be recommended from the standpoint of efficiency. Even if used within a few minutes after intercourse, it is quite obvious that the spermatozoa may be out of reach of the chemical agent.[3, 8, 16, 23] The value of the douche lies in its employment as an auxiliary to other measures, as an emergency procedure, or, more important, as a hygienic measure following intercourse. Since such products have been discussed quite recently in this journal[30] they need not be further considered here.

Planned births and the realization of this aim by means of effective contraceptive measures is now an accepted social trend. However, the ideal contraceptive still awaits formulation to obtain entire security and simplicity for those who wish or need the protection offered. In the meantime much has been done toward the solution of an old problem.

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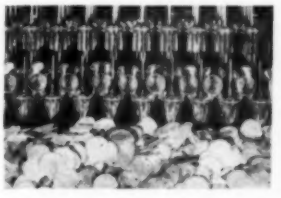
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WANTED—CHEMIST for cosmetics and proprietary drugs, by large Pennsylvania manufacturer. Write giving all details such as age, experience, draft status, salary. Must be capable of producing new products. Unlimited possibilities for right man. Box 455, DRUG & COSMETIC INDUSTRY.

RESEARCH AND DEVELOPMENT. Large cosmetic firm. Research chemist with experience on formulation and production of lipstick and rouge. Box 456, DRUG & COSMETIC INDUSTRY.

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MAN, experienced, wants part time work making cosmetics in Chicago. Box 448, DRUG & COSMETIC INDUSTRY.

CHEMIST, Sc.D., 17 years in research, organic, inorganic, analytical and manufacturing, chemical products, cosmetics, beauty supplies, machineless pads. Presently chief chemist. Willing to accept position that offers greater opportunities. Box 450, DRUG & COSMETIC INDUSTRY.

CAPABLE EXECUTIVE, 22 years background in production and sales of drug and cosmetic specialties, essential oils, waxes. Know his way. Seeks connection with established firm. Box 457, DRUG & COSMETIC INDUSTRY.

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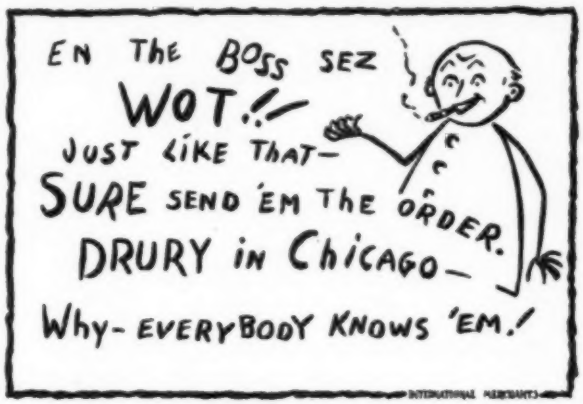

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